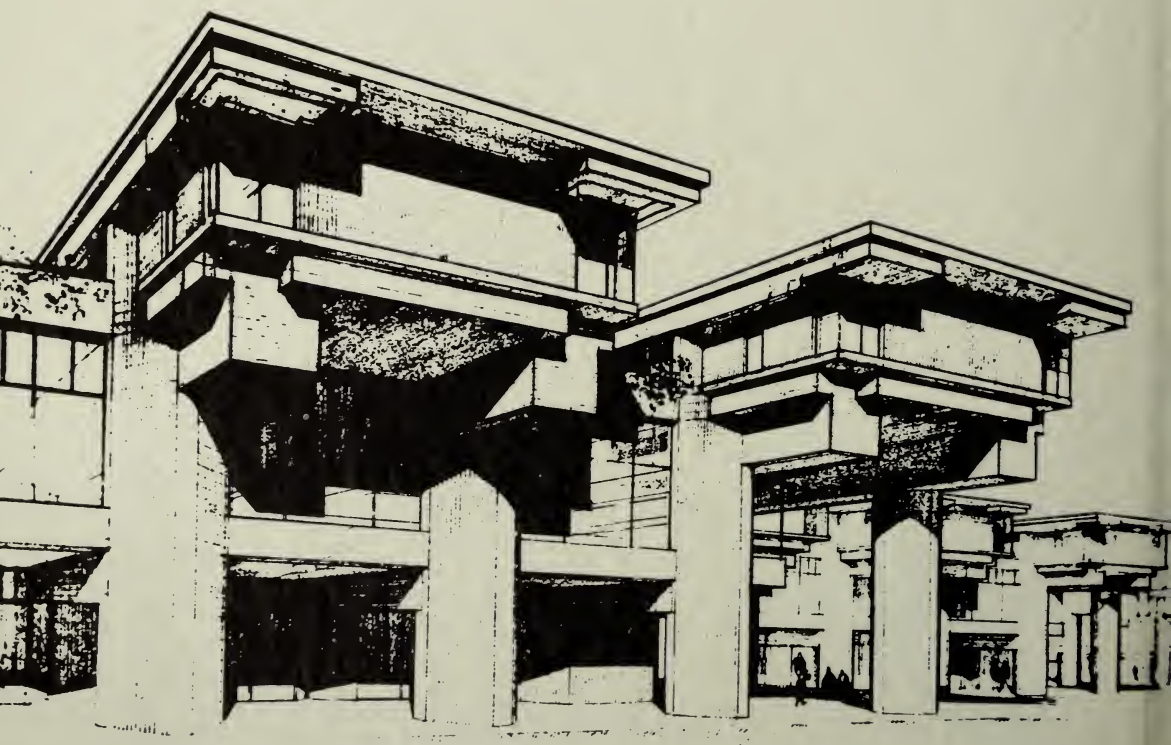
SOUTHEASTERN MASSACHUSETTS TECHNOLOGICAL INSTITUTE



SOUTHEASTERN MASSACHUSETTS TECHNOLOGICAL INSTITUTE

CATALOG FOR THE ACADEMIC YEARS
1965-1966
1966-1967

CAMPUSES AT
North Dartmouth, Fall River
and New Bedford, Massachusetts

SOUTHEASTERN MASSACHUSETTS TECHNOLOGICAL INSTITUTE

is a member of the

NEW ENGLAND ASSOCIATION OF COLLEGES AND SECONDARY SCHOOLS

SOUTHEASTERN MASSACHUSETTS TECHNOLOGICAL INSTITUTE IS AN INSTITUTIONAL MEMBER IN THE FOLLOWING ASSOCIATIONS:

American Association of Collegiate Registrars and Admissions Officers, American Association of School Administrators, American Association of University Women, American College Health Association, American Council on Education, American Mathematical Society, American Society for Testing and Materials, College Art Association of America, College Entrance Examination Board, Massachusetts Association of School Superintendents, Mathematical Association of America, New England Association of Colleges and Secondary Schools, New England Association of School Superintendents.

For all information pertaining to college admission, address:

THE DIRECTOR OF ADMISSIONS

Southeastern Massachusetts Technological Institute

North Dartmouth, Mass. 02747

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ACADEMIC CALENDAR

September, 1965	
7—Tuesday, 9:00 A.M.	Freshman Registration
8—Wednesday, 9:00 A.M.	Upper-class Registration
9—Thursday, 9:00 A.M.	Freshman Orientation
10—Friday, 8:00 A.M.	Freshman Testing
13—Monday, 8:00 A.M.	Fall Semester Begins
October	
12—Tuesday	Columbus Day—Holiday
30—Friday	Mid-semester Grade Report
November	
11—Thursday	Veteran's Day—Holiday
24-28	Thanksgiving Recess
29—Monday, 8:00 A.M.	Classes Resume
December	
20—Monday	Wednesday Schedule of Classes
21—Tuesday	Thursday Schedule of Classes
22—Wednesday	Friday Schedule of Classes
23—Thursday	Christmas Recess Begins
January, 1966	
3—Monday, 8:00 A.M.	Classes Resume
10-19	Fall Semester Examinations
20—Thursday, 9:00 A.M.	Upper-class Registration
21—Friday, 9:00 A.M.	Freshman Registration
24—Monday, 8:00 A.M.	Spring Semester Begins
February	
22—Tuesday	Washington's Birthday—Holiday
March	
11—Friday	Mid-semester Grade Report
28—April 3	Spring Recess
April	
8	Good Friday—Holiday
11—Monday, 8:00 A.M.	Classes Resume
19—Tuesday	Patriot's Day—Holiday
May	
2-31	Advanced Summer School Registration
16-26	Spring Semester Examinations

ACADEMIC CALENDAR — Continued

June	
1-7	Registration for the First Summer Session
12—Sunday	Commencement
13—Monday	First Summer Session Begins
July	
4—Monday	Independence Day, no classes
9—Saturday	Make-up classes for Monday holiday
11—Monday	Registration for the Second Summer Session
12—Tuesday	Registration for the Second Summer Session
15—Friday	Final examinations and close of the First Session
19—Tuesday	Second Summer Session Begins
23—Saturday	Make-up classes for Monday schedule
August	
19—Friday	Final examinations and close of the Second Summer Session
September	
6—Tuesday, 9:00 A.M.	Freshman Registration
7—Wednesday, 9:00 A.M.	Upper-class Registration
8—Thursday, 9:00 A.M.	Freshman Orientation
9—Friday, 8:00 A.M.	Freshman Testing
12—Monday, 8:00 A.M.	Fall Semester Begins
October	
12—Wednesday	Columbus Day—Holiday
29—Friday	Mid-Semester Grade Report
November	
11—Friday	Veteran's Day—Holiday
24-27	Thanksgiving Recess
29—Monday, 8:00 A.M.	Classes Resume
December	
19—Monday	Christmas Recess Begins

ACADEMIC CALENDAR — Continued

January, 1967	
3—Tuesday	Classes Resume
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27	Freshman Registration
30—Monday, 8:00 A.M.	Spring Semester Begins
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March	
10—Friday	Mid-Semester Grade Report
24	Good Friday—Holiday
April	
2-9	Spring Recess
10—Monday	Classes Resume
19—Wednesday	Patriot's Day—Holiday
May	
17—Wednesday	Last Day of Classes
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11	Commencement

UNDERGRADUATE PROGRAMS

College of Arts and Sciences

Biology
Chemistry
Economics
English
Foreign Languages
History
Mathematics
Medical Technology
Physics
Political Science
Pre-Medical
Sociology
Psychology

College of Business and Industry

Accounting
Business Administration
Textile Chemistry
Textile Technology

College of Engineering

Civil Engineering
Electrical Engineering
Industrial Engineering
Mechanical Engineering

College of Fine and Applied Arts

Visual Design
Painting
Textile Design

GRADUATE PROGRAMS

Textile Chemistry
Textile Technology
Visual Design

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ADMINISTRATION

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B.S. University of Vermont; Sc.D. (Honorary) Calvin Collidge College of Liberal Arts; Sc.D. in Ed. (Honorary) New Bedford Institute of Technology

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B.F.A. Pratt Institute; M.A. Columbia University

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FACULTY

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Winter, Frederick, *Professor of English*
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SOUTHEASTERN MASSACHUSETTS TECHNOLOGICAL INSTITUTE

The Southeastern Massachusetts Technological Institute is a publicly supported coeducational institution of higher learning offering programs leading to the degrees of Bachelor of Science, Bachelor of Arts, Bachelor of Fine Arts, Bachelor of Business Administration, Master of Science and Master of Fine Arts.

The Institute is situated in North Dartmouth, a town of 17,000 bordering Buzzards Bay and proximate to the major cities of Southeastern New England and the cultural and recreational resources of the region. SMTI also operates campus centers at Fall River and New Bedford.

Admission is open to residents and non-residents of the commonwealth who can meet the entrance requirements. Instruction is given in the colleges of Arts and Sciences, Business and Industry, Engineering, and Fine and Applied Arts and in the Graduate School. The Institute also plays a role in the economic life of the region through the SMTI Research Foundation, which makes professional and technical services available to commerce and industry.

SMTI was created in 1960 by an act of the General Court on the recommendation of the governor to provide a diversified educational program for the Southeastern Massachusetts area and for the Commonwealth. In enacting this legislation, the General Court directed that SMTI assume the responsibilities of two existing colleges in the area — Bradford Durfee College of Technology and the New Bedford Institute of Technology.

The consolidation of these institutions into SMTI was effected in 1964 and since that time the Institute has been engaged in an intensive program of development.

One aspect of this development has been enrichment of the curriculum. In September of 1965, bachelor's degree programs in the humanities and social sciences were instituted to complement existing programs in engineering, the sciences, business administration, textile technology and the fine and applied arts.

Perhaps the most exciting developments at SMTI during the past several years have taken place on the new campus under con-

struction on a wooded 730-acre site in North Dartmouth. The campus, with its functional master plan and ruggedly handsome buildings designed by architect Paul Rudolph, is being rushed to completion to keep pace with the steadily rising demand for college admission. Studies indicate that SMTI's enrollment will climb to more than 3,000 full-time students by 1967 and to more than double that number by the early 1970's.

The first classroom building, to house programs in the humanities, social sciences, business administration, and fine and applied arts, will be occupied in early 1966. Following over the next several years will be buildings for the natural and physical sciences, engineering and textile technology, an auditorium-administration building, a library-communications center that will include computer facilities, a research building, a student union, a physical education building, and dormitories.

In addition, the beautifully landscaped campus will contain parking facilities for 2,000 automobiles and playing fields for all the major sports. Thus, SMTI's students will be able to pursue a wide range of programs in an exceptionally stimulating and harmonious academic environment.

ADMISSIONS

Application for admission will be reviewed by the Director of Admissions and the Admissions Committee. The applicant prior to admission must have completed secondary school satisfactorily. A significant portion of the applicant's secondary school courses must have been of college preparatory quality and substance.

APPLICATION PROCEDURE

Requests for application forms should be addressed to the Director of Admissions, Southeastern Massachusetts Technological Institute, North Dartmouth, Massachusetts.

Before June 15 (preferably early in the senior year) each applicant must file with the Director of Admissions:

1. A formal application.
2. His scores on the Scholastic Aptitude Test.
3. His scores on two or more Achievement Tests.
4. A transcript of his secondary school record.
5. A recommendation from his secondary school principal.
6. A $10 application fee.

An applicant for one of the curricula in the College of Fine and Applied Arts must submit samples of original art work.

Scholastic Aptitude Test

All applicants for admission are required to take the Scholastic Aptitude Test given by the College Entrance Examination Board. Information concerning examination dates and procedures for taking this test may be secured from secondary school guidance directors or directly from the College Entrance Examination Board, P. O. 592, Princeton, New Jersey.

The Achievement Tests

All applicants are required to take at least two achievement tests as specified below.

Applicants who plan to major in Mathematics, Chemistry (including Textile Chemistry), or Physics must take the Level I Mathematics Achievement Test and a language achievement test. Applicants seeking admission to other programs in the College of Arts and Sciences must take a language achievement test and at least one other achievement test of his own choosing.

Applicants seeking admission to the College of Engineering must take the Level I Mathematics Achievement Test and at least one other.

Applicants planning to major in Business Administration or Accounting must take a language achievement test and at least one other.

Applicants seeking admission to the College of Fine and Applied Arts or to the Textile Technology Curriculum may select any two or more achievement tests.

The foreign language achievement test requirement shall apply only to those students who intend at SMTI to continue study in a language previously studied in secondary school. Students in this category must present, as a part of their application for admission, the results of a College Entrance Examination Board achievement test in the specific language they have chosen. The results of the language achievement test are to be used for placement purposes only.

This modification of policy does not alter the requirement that all applicants must submit at least two achievement tests.

SMTI offers courses of instruction in French, German, Portuguese, Spanish and Russian.

The Secondary School Transcript

The secondary school transcript should be submitted to Southeastern Massachusetts Technological Institute by the school principal, along with his recommendation, on the form attached to the application blank. It is the responsibility of the applicant to see that this completed form is submitted to SMTI. The transcript should include the academic record of the applicant for the ninth, tenth, eleventh, and the first marking period of the twelfth grade, and his class standing for those years. If the applicant attended more than one secondary school, he should send transcript forms to the principal of each school attended. It is the responsibility of the applicant to see that transcripts for his complete secondary school record are submitted to SMTI.

Interviews

Interviews are not required of all students. In cases in which the Director of Admissions feels that an interview is advisable, he will so inform the applicant. Applicants who wish to initiate an interview may do so by writing to the Director of Admissions.

Foreign Students

Complete applications (including official transcripts of secondary school records) from students who are residents of other countries must be received at the college before February 1, in order to be considered for entrance the following September. Such applicants must also submit a statement from a school official certifying that the applicant can speak, write, and read English at a fluency level sufficient to do college work in the English language.

Transfer Students

Applicants who wish to transfer to SMTI from an approved college must follow the application procedure as outlined above. In addition, applicants for transfer must submit official transcripts of their records in all post-secondary schools attended. Applicants will be considered for second semester admission only if they have satisfactorily completed at least the first semester of the program to which they seek admission. December 31 shall be the deadline for the receipt of application, complete in every detail, for the Spring Semester.

Successful Candidates

The successful candidates must submit a $25.00 matriculation fee and a report of physical examination made by a physician of the student's choice upon a form supplied by SMTI. The $25.00 fee is not refundable, but will be credited to the student's account.

The matriculation fee and physical report must be submitted within 30 days of the date of acceptance or a written request for an extension of time for said fee and report must be submitted.

Course Requirements

Minimum course requirements for all applicants:

1. At least twelve units of college preparatory courses.
2. Four units of English.
3. Two units of social science (one must be in U. S. history).
4. Two units of mathematics.
5. One unit of natural science.
6. Two units of the same foreign language.

Additional course requirements:

Applicants seeking admission to programs in Engineering, Mathematics, Chemistry, Physics and Textile Chemistry

1. Three and one-half units in College Preparatory Mathematics which must include at least two units in Algebra and one-half unit in Trigonometry.
2. Natural Science entrance requirements of Physics and Chemistry, one of which must be a laboratory course or three units in Natural Science, one of which must be a laboratory course in Physics or Chemistry.

Applicants seeking admission to programs in Biology, Medical Technology, Pre-Medical and Textile Technology.

1. Three units of College Preparatory Mathematics which must include two years of Algebra.
2. Two years of Natural Science.

Applicants seeking admission to Business Administration and Accounting

1. Three units of College Preparatory Mathematics which must include two units of Algebra.

A person of extraordinary promise and talent may request admission although he or she does not meet exactly every requirement specified above. Only under most unusual circumstances, however, would the Director of Admissions favorably consider such an application.

Adult Applicants

In the case of adult applicants the committee may waive some of the usual requirements. An adult applicant is anyone who has reached his twenty-first birthday by December 31 of the year prior to making application.

Quality Requirements

To be accepted for admission into any program of study at SMTI, the applicant's secondary school academic record must indicate a quality of achievement which SMTI considers adequate as preparation for doing work on a college level, and his scores on the Scholastic Aptitude Test must indicate a capacity for such work.

Special quality standards may be required for admission into departments in which certain aptitudes and preparation are of prime importance to the curriculum.

Special Students

Qualified students who wish to take college level courses but do not wish to work toward a degree at SMTI may apply for admission in the manner described above. Some of the entrance requirements may be waived by the Director of Admissions for such applicants. If accepted for admission, special students will have no class standing and will not be considered candidates for degrees at SMTI. Admission will be based upon the amount of available space and the applicants' maturity, seriousness of purpose, and preparation for the work to be undertaken.

EXPENSES

Application Fee

A formal application for admission must be accompanied by a $10 application fee by check or money order made payable to SMTI. This fee is not refundable, but will be applied toward tuition if the student matriculates.

Matriculation Fee

A student who has been accepted for admission must submit a $25 matriculation payment by check or money order made payable to SMTI. Students who fail to make this payment before the due date will not be allowed to matriculate. This payment is not refundable, but will be applied toward tuition if the student matriculates.

Tuition

The tuition charge for students who are residents of Massachusetts and who are registered for ten or more credits is $100 per semester; for all others who are likewise registered for ten or more credits the charge is $300 per semester. Students who register for less than ten semester credits will pay tuition at the rate of $10 per credit if a Massachusetts residents and of $30 per credit if residence is elsewhere.

Because SMTI is a state-supported institution, its educational program and facilities are made available at a low tuition rate to students residing in the Commonwealth. Eligibility for admission as a resident is determined by the following policies:

a. A student must present evidence satisfactory to the treasurer of SMTI that his bona fide residence is in Massachusetts.

b. The residence of a minor shall follow that of the parents unless the minor has been emancipated. A minor student in the latter category, shall, in addition to the requirements respecting residence, present satisfactory documentary evidence of such emancipation. Minors under guardianship shall present documentary evidence of the appointment of the guardian as well as certification of residence of the guardian in the Commonwealth.

c. A student shall not be considered to have gained residence in Massachusetts by reason of attendance at SMTI, nor shall a student lose residential preference during continuous attendance at the Institute.

d. The residence of a wife shall follow that of the husband.

e. The President of the Institute is authorized to adjust individual cases within the spirit of these policies.

General Fee

All students who are registered for ten or more credits will be assessed a general fee of $55 per semester. Students registered for fewer than ten credits will be assessed a pro-rated fee. The general fee will be used to help support the men's and women's intercollegiate and intramural athletic programs; the medical, psychiatric and health services; and the Student Union. The fee will also be used to help defray the expenses of the student government and of various school and class activities. The fee entitles the student to all student publications and to a reduced admission price to "home" athletic events.

Medical and Surgical Insurance

An optional plan to cover medical and surgical expenses incurred by a student, on or off the campus, is available to all students at group rates.

Laboratory Fee

Students taking courses which include scheduled use of laboratories will be required to pay a fee of $10 per semester for each course. This fee is not refundable and is not to exced $20 per semester.

Late Registration Fee

A student will be permitted to register after the designated registration date only with the Registrar's approval. A $5 fee will be assessed for this privilege.

Late Payment Fee

All charges are due and payable at a date set by SMTI (usually three weeks prior to the date of registration of each semester). Students who are unable to make payment by the due date must receive permission for deferred payment from the Treasurer, in which case a late payment fee of $5 will be required. Students may not register until all charges have been paid.

Books and Supplies

Costs for books and supplies vary with class and curriculum, but $100 per year is an estimated average. First year engineering

students have an additional expense of $40-$50 for engineering drawing equipment and a slide rule. Students in the College of Fine and Applied Arts may incur some additional expense for paints, brushes, and the like.

Refund Schedule

1. Within the first two weeks from the beginning of the semester 90%
2. During the third week 70%
3. During the fourth week 50%
4. During the fifth week 30%
5. During the sixth week 20%
6. After the sixth week ..... No refund

FINANCIAL AID AND SCHOLARSHIPS

Scholarships, loans, and part-time employment are available for a limited number of needy and deserving students. Incoming students must apply for a loan after they have been accepted for admission and prior to registration in September. Further information on loans and scholarships, including the Commonwealth Scholarships, can be obtained from the Dean of Students.

LOANS

Financial assistance is available through the Massachusetts Higher Education Assistance Corporation and the National Defense Loan Program.

In 1956, the Massachusetts Higher Education Assistance Corporation was organized for the purpose of aiding young men and women who have successfully completed one year of their educational program and then find themselves in need of financial aid. Students should make application for such loans at the commercial bank of their choice situated in Massachusetts.

SCHOLARSHIPS

SMTI offers to its undergraduates a number of scholarships made possible through the generosity of private and industrial endowments. All scholarship awards are made on the recommendation of the Scholarship Committee of the Faculty or of the committee appointed by the individual or organization establishing the scholarship.

The following tuition scholarships are available to undergraduates.

Commonwealth of Massachusetts Scholarships

The Commonwealth has made available, to residents of Massachusetts, ten four-year tuition scholarships. These scholarships are granted to both upperclassmen and entering freshmen in all curricula.

Ivy Circle of the New Bedford Women's Club Textbook Scholarships

Several textbook scholarships are awarded by the Ivy Circle of The New Bedford Women's Club.

William Firth Scholarship

A $100.00 tuition scholarship made available from the William Firth Memorial Fund.

Manning Emery, Jr. Scholarship

A $100.00 tuition scholarship made available from the Manning Emery, Jr. Memorial Fund.

Acushnet Process Scholarships

Two $100.00 tuition scholarships to students matriculating in mechanical or electrical engineering or chemistry. Available to residents of greater New Bedford; preference will be given to close relatives of Acushnet Process employees.

Berkshire-Hathaway, Inc. Scholarships

Two $200.00 awards to students majoring in textiles who have indicated an interest in pursuing their textile careers in New England.

Morse Twist Drill Scholarship

A $100.00 tuition scholarship to be awarded to a student in mechanical or electrical engineering or chemistry. Preference is given to alumni or active members of Junior Achievement.

Barnet D. Gordon Family Foundation Scholarship

A $50.00 grant to students majoring in any of the textile curricula.

Revere Copper and Brass Scholarships

Two $200.00 awards to students majoring in mechanical or electrical engineering or chemistry.

J. C. Rhodes Scholarships

Four $100.00 awards to students in mechanical or electrical engineering or chemistry.

Sandoz Chemical Scholarship

A $200.00 tuition scholarship to a student majoring in textiles.

Chemstrand Corporation Scholarships

Four $250.00 tuition scholarships are awarded to students majoring in textile technology or in textile chemistry.

City of New Bedford Scholarships

Under an ordinance of the City of New Bedford, five four-year tuition scholarships are awarded to seniors of the New Bedford High School, Holy Family High School, Vocational High School, and St. Anthony High School. These are distributed as follows: two to seniors of New Bedford High School, one to each of the other schools.

Abraham S. Novick Memorial Scholarship

A $100.00 grant.

Allied Chemical Scholarship

A $100.00 scholarship available to chemistry or textile chemistry majors.

Abram Holland Memorial Scholarship

A $100.00 scholarship awarded to a business administration student entering his junior year.

Alumni Association Scholarships

Several scholarships of varying amounts.

Frank S. Stevens Scholarship Fund

This fund, founded by Mrs. Elizabeth R. Stevens of Swansea, Massachusetts, provides a number of scholarships. According to the deed of gift, preference is given to students from the town of Swansea.

Earle P. Charlton, Jr., Scholarship Fund

This fund, founded by Mr. Earle P. Charlton, provides several scholarships. The deed of gift restricts these awards to natives of the city of Fall River, Massachusetts.

City of Fall River Scholarships

Under an act of the State Legislature, five four-year scholarships are awarded to residents of the City of Fall River. These scholarships are granted to both upperclassmen and entering freshmen in all curricula.

Institute of Electrical and Electronic Engineers Scholarship

IEEE sponsors each year a $250.00 tuition scholarship awarded to a needy student majoring in electrical engineering.

The New England Textile Foundation Scholarships

The Foundation makes available each year several $100.00 tuition scholarships. These scholarships are awarded to students majoring in textiles.

The Textile Veterans Association Scholarship

The Textile Veterans Association with headquarters in New York grants a $100.00 tuition scholarship annually to a textile major. This award is known as the Seabury Stanton Award in recognition of Mr. Stanton's outstanding contribution to textiles over the years.

STUDENT SERVICES

Housing

Dormitories are not yet available on the Dartmouth campus. Accommodations with private families are readily obtained. Although a list of approved rooms is maintained, SMTI does not supervise and does not assume responsibility for off-campus student accommodations.

Bookstores

SMTI maintains a bookstore where text books and supplies can be purchased.

Health Service

Health offices are maintained at all divisions of SMTI. Medical advice and consultation are provided upon request. The offices are sufficiently equipped with furnishings and medications to handle cases in need of first aid treatment.

Library

To supplement instruction in the various courses, a library system, including approximately 45,000 volumes, is maintained by the Institute.

Status as a Government Documents Depository and the demands of a rapidly developing institution with a greatly expanded curriculum, will change this figure dramatically within the next few years.

The Library includes three divisions: one in Fall River, another in New Bedford, and one on the Dartmouth campus. Each is open for the same hours and subject to the same rules and regulations. Books from any of these centers are available for use by students, faculty and staff. A good periodical and reference collection is provided at each location. Daily inter-library loans between branches can be arranged through the librarian at each branch.

A new library implementing the latest in educational methodology and machine technology is now being planned. It will provide one of the more modern and functional library-communications facilities available anywhere in the United States.

Placement

A Student Placement Service is maintained on a full-time basis to assist graduating students in securing positions in their chosen

fields. This office keeps abreast of the needs of the various industries and passes this information along to the graduates.

The Placement Officer arranges on-campus interviews and helps both the visiting officials and the students to get the most out of such interviews. The graduate can also find employment application forms of many concerns in the Placement Office. The student is also allowed to avail himself of the opportunity to use the many college directories and placement annuals that are housed here.

The United States Government listings are also posted weekly, and many graduates have accepted positions in one of the many governmental departments. The government has also employed many of our students for summertime work in various fields. Information relative to such opportunities is passed on to the underclassmen.

The Placement Service cannot guarantee employment. It does, however, assist the graduate in positioning himself. Its service is also extended to alumni who desire a change of position, particularly assisting in filling positions where experienced personnel are demanded.

Alumni Association

The Alumni Association, from its social aspect, serves to continue and renew the friendships and feelings of comradeship which all alumni felt as students; from a service viewpoint, the association serves the alumni as a focal point for placements; it serves as a clearinghouse for news about, and of interest to, the alumni; and it helps SMTI in those cases where alumni financial aid can be of assistance.

The Alumni Association maintains an up-to-date file on all graduates. During the academic year, every alumnus receives News-Letters that keep him abreast with the latest information about SMTI and the activities of the alumni. At the end of May each year, the Alumni Association has an Alumni Reunion Weekend to renew acquaintances and see at firsthand the progress being made at SMTI.

Guidance and Counseling

A close personal relationship is maintained between the student body and the faculty. Through the Faculty Advisers, assistance is given to students during the year in the scheduling of their classes and in solving problems which may arise during the year. Whenever it is deemed necessary, correspondence and interviews are

entered into between the Dean of Students and families of those students whose performance is not considered satisfactory.

The freshman year begins with a Freshman Orientation Period immediately preceding the Fall Term. Registration, general intelligence and aptitude tests are completed; orientation lectures on campus and professional life are given. Interpretive results of the intelligence and aptitude tests are available to the students, to the Dean of Students, and to the faculty advisers.

Student Handbook

A student handbook is given to each new student on registration day. The handbook contains information concerning student services, student behavior, scholastic regulations including the grading system, requirements for honors, and student activities. Every student is held responsible for knowledge of its contents.

STUDENT ORGANIZATIONS

Student Council

The Student Council is the governing body for all student organizations.

Business Management Club

The Business Management Club was formed in May of 1961. Its membership is comprised solely of Junior and Senior majors in Management who are interested in broadening their business background.

Circle K Club

This organization is sponsored by Kiwanis International and is a service organization similar to Kiwanis and other service clubs.

Musical Organizations

Membership in the following musical organizations is open to students of SMTI: Band, orchestra (small and large ensembles), chorus and small vocal ensembles.

Any student who wishes to study voice or a musical instrument should consult with the musical director.

The Marketing Society

This organization attempts to acquaint students with unique problems and considerations in certain distributive areas of the business world. To do this, the officers and members employ such media as field trips, movies, luncheon speakers, and various company representatives. Membership is open to all Business Administration students.

Yearbook

A Yearbook is published by and for all students at SMTI, and it provides for the most part a pictorial record of all classes and of all principal events of the school year.

Biology Club

This organization seeks to foster the advancement of professional awareness among students in the life sciences and to encourage the discussion and exchange of ideas relating to the numerous specialties which comprise the biological sciences. Lecturers, discussions,

motion pictures, field trips and similar media of communication are utilized to stimulate student interest and to encourage discussion in the informal setting provided.

Interact Club

The Interact Club, whose membership comprises both American and foreign students, seeks to provide opportunity for young men and women to work together in a world fellowship dedicated to services and international understanding; it also seeks to provide opportunities for gaining increased knowledge and understanding of community, national and world affairs.

Fraternities

Phi Psi
Epsilon Phi Pi
Delta Kappa Phi
Nu Beta Tau

Sororities

Kappa Sigma Phi
Chi Delta Phi

The Americal Chemical Society

The society seeks to encourage the advancement of chemistry and chemical education. The activities of the SMTI chapter include field trips and lectures pertaining to chemistry and allied fields.

American Association of Textile Chemists and Colorists

The SMTI chapter is a student unit of the national organization whose membership is open to students who are preparing for a career in Textile Chemistry.

The Institute of Electrical and Electronics Engineers

The objectives of the I. E. E. E. Student Branch are to provide an organization through which the technical development and the ideas of the engineering profession, outside the classroom, may be shared with students and to provide the student with the opportunity to contribute toward the advancement of professionalism in engineering.

The Mechanical Engineering Society

The Society attempts to establish and foster bonds of friendship and common interest among students in the same and related fields.

American Association of Textile Technologists

The purpose of this organization is to bring about a more intimate relationship between the textile industry and undergraduates majoring in the field of textiles or related areas.

Geology Club

The Club holds meetings once monthly during the academic year. The year's program varies and consists of such activities as lectures and organized field trips as well as discussional business meetings.

Mathematics Club

The Mathematics Club was formed in 1952, to further student interest in this subject field. The Club holds meetings once a month at which time either a student or a faculty member presents a talk on some mathematical topic.

Newman Club

The Newman Club is an organization of Catholic college students dedicated to the wider application of the teachings of the Catholic Faith to their private and social lives.

Student Publications

Torch. This is the student newspaper managed and published solely by student effort. In addition to publishing news events relative to the college and campus, the Torch makes available to the student body a channel for expressio nand general information.

Talker. This is a weekly publication concerned for the most part with editorial comment pertaining not only to college life but to happenings of significance taking place within the community — that is, local, state, national and inter-national.

Athletics

The administration and faculty approve and encourage a full program on intercollegiate and intramural athletics.

Varsity teams include baseball, tennis, soccer, fencing, golf, and track. SMTI is an active member of the National Association of Intercollegiate Athletics and of the Southern New England Coastal Conference. Future plans include varsity teams in football, wrestling, and other sport activities.

COLLEGE REGULATIONS

PERSONAL STANDARDS

It is assumed that a student matriculating at SMTI has attained sufficient maturity and developed those attributes condusive to an adequate preparation for a professional career. This means that the administration expects that each student will have developed an ability to get along well with others and to maintain a personal high standard of honesty and moral conduct.

With regard to the question of personal attire and grooming, the administration assumes that each student will conduct himself according to those standards expected of young men and women preparing for professional careers.

A student found guilty of cheating (dishonestly receiving or giving aid) in class work or in examinations or of plagiarism in any form is subject to strong disciplinary action.

A student may be dropped or subject to other disciplinary action, for conduct not in keeping with the best interests of SMTI.

No student or group of students in connection with any public performance, athletic or non-athletic, shall use any means or designation that implies any connection with SMTI without the sanction of the Institute.

Attendance

Every student is expected to be present at all lectures and laboratories for which he is registered, unless a satisfactory excuse is presented for his absence. Excessive absences may result in disciplinary action by Dean of the College, which may lead to loss of credit for a course, suspension or dismissal.

Voluntary Withdrawal

A student wishing to withdraw from SMTI must first notify the Registrar and fill out a "Withdrawal Notice" form. Failure to comply with this regulation will jeopardize the student's honorable withdrawal privilege and his receipt of official transcripts. A student who officially or unofficially withdraws from SMTI, after five weeks but before the end of the semester, shall receive a grade of WP or WF in each of his courses as it applies. A student withdrawing during the first five weeks shall receive a W in each of his courses. A WP indicates that the student was doing passing work at the time of his withdrawal from the course. A WP does not

affect the student's academic average. A WF grade indicates that the student's work was unsatisfactory at the time of his withdrawal from a course. A WF is the same as an F, insofar as his academic average is concerned.

Veterans who withdraw from SMTI are urged to consult with their educational advisors in the Veterans' Administration.

Academic Probation

Any student whose cumulative average falls below 2, or whose average in the preceding semester falls below 1.5, will be placed on academic probation. While on academic probation, a student may not hold any office in any class, club, society or fraternity of SMTI.

Registration

On registration day, each student is assigned a room and adviser; this information is listed on official bulletin boards.

No student may enter a new course later than two weeks after the first meeting of the course; he must obtain the permission of the Registrar to enter any classes after the regular registration period.

No student shall be allowed to register for more credit hours (including off-campus courses) than the number scheduled for his program without approval of the Academic Committee. No student on academic probation will be granted this permission in any case. It is also required that such requests be submitted to the Registrar no later than 4:00 P.M. on the day of registration.

All other questions pertaining to registration must be referred to the office of the Registrar.

Late Registration Fee

A student will be permitted to register after the designated registration date only with the Registrar's approval. A $5.00 fee will be assessed for this privilege, if granted.

Changes in Academic Programs

All requests for change of major must be submitted to, and approved by, the Registrar. Request forms are available in the Registrar's Office.

Dropping of Courses

During the first five weeks of a semester, a student may drop a course, without penalty, provided he gives written notification to his instructor and his adviser. A grade of W must be immediately submitted to the Registrar by the instructor.

After the first five weeks of a semester, a student may drop a course in which he has a passing grade, provided that he receives the approval in writing of his adviser and notifies his instructor of his intention. In this case, a grade of WP will be reported immediately to the Registrar by the instructor. After the eighth week, a student may receive a grade of WP only in the case of extenuating circumstances. In such cases, the student must receive in writing the approval of his instructor, as well as that of his adviser.

Repeating of Courses

A student may repeat a course which he has passed only with the consent of his department head and his adviser. In such cases, credit shall be allowed only once, but in the computation of the grade-point average, the registered credit and the quality points for both grades shall be included. When a failed course is repeated, both grades will be included in the grade-point average.

Grade Reports

Grades are sent to the student at the end of each semester. At the mid-semester, a report is sent to the advisor and parents of those students who are in danger of failing one or more courses.

Grades and Grading System

Each student's academic achievement is reflected in the reports which are issued at the end of each semester. Grades are stated by letters according to the following interpretation and earn the indicated grade-points per credit:

A—90-100	Excellent	4 grade-pts.
B—80-89	Good	3 grade-pts.
C—70-79	Average	2 grade-pts.
D—60-69	Passing (but unsatisfactory)	1 grade-pt.
F—Below 60	Failure	0 grade-pt.
W—Withdrawal	No penalty, withdrawal within first five weeks	
WP—Above 60	Withdrawal and passing after fifth week	
WF—Below 60	Withdrawal and failing after the fifth week of the semester	

Scholastic standing is determined by computing the weighted grade-point average. This is found by multiplying the grade-point value of the grade by the course credits. The grade-point values of the separate courses taken in the semester are added; the sum is then divided by the total credits taken in that semester. The result is the weighted grade-point average. Credit values are assigned as follows: Lectures and recitations (1 hour) 1; 2 or 3-hour laboratory periods have the same credit value as a one-hour lecture, *viz.* 1. In effect one credit means three hours of work which may be a combination of lecture, laboratory, or outside preparation per week for a semester.

Whether a one-semester or a two-semester course, the grade received at the end of each semester stands as the final grade for that semester of the course. Quality point for the grade of F will be included in the student's cumulative average. An F indicates a failure which may be made up only by repeating the course at SMTI or by presenting transfer credits of a grade of C or better from an approved institution. Each failed course should be rescheduled at the earliest opportunity.

Students must acquaint their advisers with such failures when registering for the next semester. Students are reminded that all courses taken outside of the regular schedule for which credit is to be requested must be APPROVED IN ADVANCE by the Registrar.

A student who has received a failure (F) will not be allowed to register for any course for which the failed course is a prerequisite until such failure has been removed by repetition of the course at SMTI or at an approved institution. A student who earns an F the first semester of a continuing course must repeat the work of that semester before proceeding to the remainder of the course.

An I grade must be removed by the student within a stated and definite period of time set by the course instructor, but not to extend beyond thirty calendar days subsequent to the scheduled final examination. Unless the work of the course is completed and the examination passed by that time, the I grade is converted to an F. When the student meets the conditions set by the course instructor within the time allowed, the instructor shall assign to the student a grade for the course to replace the I.

The burden of removing an I grade rests with the student; in the event that the student does not remove this academic condition promptly, he jeopardizes his opportunity to graduate at the completion of four academic years.

Transfer of Credit and Advanced Standing

Requests for credit in courses taken at other institutions prior to admittance should be filed with the Director of Admissions and evaluated by the Dean of the College into which the student is accepted. Such requests must be accompanied by official transcripts and catalogs containing course descriptions from the colleges involved.

No credit will be allowed for work completed elsewhere unless it has been passed with a grade of C or better.

Transfer of credit will be recorded on the student's permanent record card but will not be calculated in the student's grade-point average. A student registered at SMTI, who wishes to enroll in courses in another college for transfer credit to SMTI must have such courses approved in advance by the Registrar. On the completion of these courses, an official transcript should be forwarded to the Registrar.

Dean's List

Following the completion of each semester, the Registrar submits to the academic deans a "Dean's List" consisting of the names of those students whose academic record for the previous semester is of high quality. Each dean submits his list, to the President, to be incorporated in a President's directory of scholars.

To be eligible for the Dean's List, students must:

1. Achieve a grade-point average of at least 3.2 for the semester with no I grades.
2. Carry a complete program of studies as indicated by the curriculum of the department, major, and year in which he is enrolled.

Graduation Requirements

To qualify for graduation, a candidate must satisfy the following requirements:

The satisfactory completion of all courses in one of the prescribed curricula.

A cumulative quality point average of not less than 2.

Two years of residence at the Institute as a full-time student and firty percent of the required credits earned at SMTI. The senior year must be in residence.

Minimum Scholastic Standards

A student will be dismissed from SMTI as deficient in scholarship, (1) if at the end of the freshman year the student has failed to earn a cumulative grade-point average of 1.2; (2) if at the end of the sophomore year the student has failed to earn a cumulative grade-point average of 1.6; (3) if at the end of the junior year the student has failed to earn a cumulative grade-point average of 1.8.

A transfer student must satisfy the cumulative grade-point average (based solely on his academic record at SMTI) of the class to which he is assigned.

Financial Requirements for Graduation

Degrees and transcripts will be withheld from students who have not paid all bills due SMTI.

Transcript of Records

Each student is entitled to three free transcripts of his college record. Additional transcripts will be prepared upon request at a charge of one dollar ($1.00) each. When a single request is for more than one copy of a transcript, there will be a charge of one dollar ($1.00) for the first copy and of thirty-five cents ($.35) for each additional copy.

GRADUATE SCHOOL

GRADUATE PROGRAMS — MASTER OF SCIENCE DEGREE

(1) Textile Chemistry
(2) Textile Technology

These graduate programs are designed to allow able students to further their studies in a specialized area. In addition to taking advanced courses in his field of special interest, a candidate is required to investigate a specific problem such as might be encouraged in a research laboratory or textile plant and, under competent guidance, to carry it to its logical conclusion. The candidate is required to evaluate and interpret his findings in his master's thesis.

Admission Requirements

The applicant must have received a Bachelor of Science degree in an appropriate field from a college recognized by the Institute.

An average grade of "B" or better in the undergraduate major is required.

All graduate candidates must designate a major field; no unclassified students will be admitted to the Institute.

Admission will be to full graduate standing only. No provisional or special students will be admitted in graduate courses.

Application Procedure

A student interested in graduate studies at the SMTI should file an application with the Dean of the Graduate School, North Dartmouth, Massachusetts 02747.

Applicants should also:

File an application by May 1 preceding the fall term in which he wishes to enroll.

Have mailed directly to the Dean of the Graduate School two letters of reference by persons qualified to judge the applicant's ability to carry on graduate work.

Have official transcripts of all undergraduate and graduate records sent to the Dean of the Graduate School by the institutions previously attended. The content, credit hours and semesters related to each subject taken, must also be included. This information must be received at the Institute no later than the first of May preceding the fall term in which the applicant wishes to enroll.

Tuition

In-State students $100.00 per semester

Out-of State and foreign students $300.00 per semester

Matriculation Fee

A student who has been accepted for admission must submit a $25.00 matriculation payment. This payment is not refundable but will be applied toward tuition if the student matriculates.

Credits

A minimum of thirty semester credits is required by students for a graduate degree. Credits towards the Master of Science degree may be obtained as follows:

All candidates for the graduate degree must prepare a thesis representing an original investigation. The thesis will represent ten credits.

No more than six transfer credits will be accepted from other institutions.

Requirements for Graduation

In order to be granted the Master of Science degree the candidate must have fulfilled the following requirements:

Satisfactorily completed the prescribed course of study leading to the degree in the field in which the student has enrolled. Have passed a comprehensive oral examination to satisfy the examining committee that the candidate possesses a reasonable mastery of knowledge in his major and minor fields. This examination will not be held until all other requirements, except completing the course work of the last semester, are satisfied. The examination, however, must be taken not later than two weeks before the end of the semester in which the degree is to be awarded.

Have maintained a minimum standing of "B" in graduate courses.

A reading knowledge of at least one approved foreign language. Have a minimum of one year of academic residence.

Must have completed all graduate work within five calendar years.

GRADUATE PROGRAMS — MASTER OF FINE ARTS

A two-year program of study is arranged leading to the Master of Fine Arts degree, designed to prepare qualified candidates for professional achievement in the area of graphic design. Advanced design problems are presented, involving work in aesthetics, typography, calligraphy, communications, graphic design history, color and photography are undertaken with standards of absolute quality and significant cultural attainment as goals.

Admission Requirements

The applicant must have received a bachelor's degree, with Visual Design or Graphic Design as a major, from a recognized institution.

The applicant must have received an undergraduate record with a B average; some exceptions may be made on evidence of significant professional performance in the field of graphic arts.

Certain areas of undergraduate work may be required in addition to the regular graduate program if the candidate's undergraduate program is found lacking.

Admission Procedure

A student interested in graduate studies at the Institute should file an application with the Dean of Graduate School.

File an application by May 1 preceeding the fall term in which the student wishes to enroll.

Have sent directly to the Dean of Graduate School two letters of reference by persons qualified to judge the applicant's ability to carry on graduate work.

Have official transcripts of all undergraduate and graduate records sent to the Dean of the Graduate School by the institutions previously attended. The course content, credit hours and semesters related to each subject taken must also be included. This information must be received at the Institute no later than the first of May preceding the fall term in which the applicant wishes to enroll.

Submit a portfolio of the candidate's work to the Dean of Graduate School.

Requirement for the Master of Fine Arts Degree

The entire program must be undertaken within five years unless extended by the Dean of the Graduate School.

All candidates for the degree must pass a reading examination in a foreign language.

A minimum of forty-eight credit hours is required of students for the M. F. A.

No more than six transfer credits will be accepted from other institutions.

A thesis covering original research and approved by the head of the department must be completed satisfactorily.

A student must complete the program of studies as outlined by the department.

UNDERGRADUATE CURRICULA

COLLEGE OF ARTS AND SCIENCES

During the 1965-66 academic year, first-year students in the College of Arts and Sciences may select their major fields of study from among the following: biology, chemistry, economics, English, history, foreign languages, mathematics, medical technology, physics, political science, pre-medical, psychology and sociology.

Transfer students who wish to major in Economics, English, Foreign Languages, History, Pre-medicine, Psychology and Sociology will be accepted on the first- and second-year levels only.

Majors in Medical Technology are candidates for the Bachelor of Science degree. Majors in Biology, Chemistry, and Physics may be candidates for either the Bachelor of Science or Bachelor of Arts degrees. All other majors are candidates for the Bachelor of Arts. Requirements for these two degrees are listed below . . .

REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE

Freshman English

All first year students are required to take Freshman English, a two-semester course in the basic skills of communication, written and spoken.

Foreign Language

Every student in the College of Arts and Sciences must fulfill a minimum foreign language requirement in one of the following ways:

(1) He may satisfy the requirement in a foreign language which he has studied for two or more years in secondary school by either passing a second-year college course in that language or by passing a proficiency examination in it.

(2) He may satisfy the requirement in a foreign language which he has studied for less than two years in secondary school by satisfactorily completing a first- and second-year college course in that language.

Distribution Requirement for the Bachelor of Arts Degree

All candidates for the Bachelor of Arts degree must take one year of a Natural Science, eighteen semester credits in the

Humanities (six of these credits must be in English literature, and six must be in advanced courses), and twelve semester credits in the social sciences (six of which must be in advanced courses.)

Major Field Requirement

Every student must complete at least thirty semester credits of work in his major field and at least forty-two semester credits in his major field and a related field combined. Exact specifications will be determined by each department. The department will also determine what is considered a related field.

During the senior year every student in the College of Arts and Sciences is required to take a comprehensive examination in his major field.

Free Electives

A sufficient number of courses must be elected so that the earned semester credits total to a minimum of 120.

Departmental Requirement

All candidates for the degree will also be required to meet the specific requirements of their individual departments.

Quality Requirement

A cumulative grade point average of at least 2 out of a possible 4 is required of all students.

REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE

The candidate for the Bachelor of Science degree in the College of Arts and Sciences must satisfy the same requirements for the degree as the Bachelor of Arts candidate with the exception of the distribution requirement, which is replaced by the following:

Distribution Requirements for the Bachelor of Science Degree

Six semester credits of natural science in addition to that required in his curriculum, six semester credits in English literature, and six semester credits in the social sciences.

A student majoring in chemistry, physics, or biology may elect to be a candidate for either the B.A. or B.S. degree. Students majoring in medical technology are candidates for a B.S. degree. All other majors in the College of Arts and Sciences are candidates for the B.A. degree.

GENERAL BIOLOGY CURRICULUM

		First Semester			Second Semester		
	1st Year	R	L	C	R	L	C
BIO 121	*Biology of Organisms	3	2	4			
BIO 122	Biology of Cells				3	2	4
CH 111, 112	Inorganic Chemistry and Qualitative Analysis	3	3	4	3	3	4
MA 101, 102	**Elements of College Mathematics	3	0	3	3	0	3
E 101, 102	Freshman English	3	0	3	3	0	3
	Foreign Language	3	0	3	3	0	3
				17			17

*Biology of Organisms requirements may be waived for students who present evidence of having completed a high school BSCS course with an A standing or who have attained a BSCS achievement test of score 5.

**Analytic Geometry and Calculus I and II may be substituted for Elements of College Mathematics.

	2nd Year						
BIO 231	Genetic Mechanisms	3	0	3			
BIO 232	Biology of Populations				3	2	4
CH 211, 212	Organic Chemistry	3	3	4	3	3	4
PHY 201, 202	*General Physics	3	0	3	3	0	3
	Foreign Language	3	0	3	3	0	3
	Humanities or Social Sciences	3	0	3	3	0	3
				16			17

*Physics I, II, III, IV may be substituted for General Physics

	3rd Year						
CH 301	Quantitative Analysis				2	6	4
	Humanities or Social Sciences	3	0	3	3	0	3
	Unspecified			13			7
				16			14

	4th Year						
	Humanities or Social Sciences	3	0	3	3	0	3
	Unspecified			9			9
				12			12

Biology Electives

Fifteen (15) credits in biology electives must be chosen from among the following list. Approval of adviser is required. Students must also meet college requirements for the B.S. or B.A. degree.

Biology 121, 122, 231, and 232 are prerequisites for all of the following courses. Prerequisites may be waived with the consent of the instructor.

BIO 421	Developmental Biology
BIO 313	Comparative Physiology
BIO 414	The Physiology of Cells
BIO 314	General Ecology
BIO 415	Limnology and Oceanography
BIO 315	The Biology of Algae
BIO 317	The Biology of Invertebrate Animals
BIO 413	The Biology of Fishes
BIO 411	Proseminar, Current Topics in Biology

CHEMISTRY CURRICULUM

		First Semester			Second Semester		
	1st Year	R	L	C	R	L	C
MA 111, 112	Analytic Geometry and Calculus I, II	4	0	4	4	0	4
CH 111, 112	Inorganic Chemistry and Qualitative Analysis	3	3	4	3	3	4
PHY 111, 112	Physics I and II	4	0	3	4	0	3
PHY 121, 122	Physics Laboratory (biweekly)	0	2	½	0	2	½
E 101, 102	Freshman English	3	0	3	3	0	3
	Foreign Language	3	0	3	3	0	3
				17½			17½
	2nd Year						
MA 211	Analytic Geometry and Calculus III	4	0	4			
MA 212	Differential Equations				3	0	3
CH 211, 212	Organic Chemistry	3	6	4	3	6	4
PHY 211, 212	Physics III and IV	4	0	3	4	0	3
PHY 221, 222	Physics Laboratory (biweekly)	0	2	½	0	2	½
	Foreign Language	3	0	3	3	0	3
	Humanities or Social Sciences			3			3
				17½			16½
	3rd Year						
CH 301	Quantitative Analysis	2	6	4			
CH 302	Instrumental Analysis				3	4	4
CH 311, 312	Physical Chemistry	4	4	5	4	4	5
	Humanities or Social Sciences			3			3
	Unspecified			3			3
				15			15
	4th Year						
CH 411	Chemical Literature and Report Writing	3	0	3			
	Chemistry Elective			6			6
	Humanities or Social Sciences			3			3
	Unspecified			3			6
				15			15

CHEMISTRY ELECTIVES:

CH 322	Organic Identification
CH 331	Unit Processes
CH 342	Advanced Organic Chemistry
CH 351	Organic Micro — Quantitative Analysis
CH 352	Organic Preparations
CH 421, 422	Introduction to Research

MATHEMATICS CURRICULUM

		First Semester			Second Semester		
	1st Year	R	L	C	R	L	C
MA 111, 112	Analytic Geometry and Calculus I and II	4	0	4	4	0	4
PHY 111, 112	Physics I and II	4	0	3	4	0	3
PHY 121, 122	Physics Laboratory (biweekly)	0	2	½	0	2	½
	Foreign Language	3	0	3	3	0	3
E 101, 102	Freshman English	3	0	3	3	0	3
	Humanities or Social Sciences			3			3
				16½			16½
	2nd Year						
MA 211	Analytic Geometry and Calculus III	4	0	4			
MA 212	Differential Equations				3	0	3
MA 221	Linear Algebra	3	0	3			
MA 222	Introduction to Modern Algebra				3	0	3
PHY 211, 212	Physics III and IV	4	0	3	4	0	3
PHY 221, 222	Physics Laboratory (biweekly)	0	2	½	0	2	½
	Humanities or Social Sciences			3			3
	Foreign Language	3	0	3	3	0	3
				16½			15½
	3rd Year						
MA 311, 312	Advanced Calculus	3	0	3	3	0	3
	Mathematics Elective			3			3
	Natural Science			3			3
	Humanities or Social Sciences			3			3
	Unspecified			3			3
				15			15
	4th Year						
MA 401	History of Mathematics	3	0	3			
	Mathematics Electives (advanced)			3			3
PH 482	Philosophy of Science				3	0	3
	Humanities or Social Sciences			6			6
	Unspecified			3			3
				15			15

Junior Math Electives:

MA 341	Differential Equations II
MA 342	Vector Analysis
MA 351	Numerical Analysis
MA 361	Theory of Numbers
MA 362	Theory of Equations

SENIOR MATH ELECTIVES:

MA 411	Functions of Real Variables
MA 421	Functions of a Complex Variable
MA 431	Probability
MA 422	Linear Programming
MA 441	Modern Algebra
MA 451	Differential Geometry
MA 452	Introduction to Higher Geometry
MA 461	Elementary Topology
MA 471, 472	Mathematical Statistics I, II

MEDICAL TECHNOLOGY CURRICULUM

		First Semester			Second Semester		
	1st Year	R	L	C	R	L	C
BIO 121	*Biology of Organisms	3	2	4			
BIO 122	Biology of Cells				3	2	4
CH 111, 112	Inorganic Chemistry and Qualitative Analysis	3	3	4	3	3	4
MA 101, 102	**Elements of College Mathematics	3	0	3	3	0	3
E 101, 102	Freshman English	3	0	3	3	0	3
	Foreign Language	3	0	3	3	0	3
				17			17

*Biology of Organisms requirements may be waived for students who present evidence of having completed a high school BSCS course with an A standing or who have attained a BSCS achievement test of score 5.

**Analytic Geometry and Calculus I and II may be substituted for Elements of College Mathematics.

	2nd Year						
BIO 221, 222	Anatomy and Physiology	3	2	4	3	2	4
CH 211, 212	Organic Chemistry	3	3	4	3	3	4
PHY 201, 202	General Physics	3	0	3	3	0	3
	Humanities or Social Sciences			3			3
	Foreign Language	3	0	3	3	0	3
				17			17
	3rd Year						
BIO 321	General Microbiology	3	2	4			
BIO 332	Diagnostic Bacteriology				2	2	3
CH 301	Quantitative Analysis				2	6	4
	Biology Seminar	1	0	1	1	0	1
	Humanities or Social Sciences			6			6
	Unspecified			3			
				14			14
	4th Year						
	Technical Courses at Hospital						30

PRE-MEDICAL CURRICULUM

The pre-medical major is a candidate for the degree of Bachelor of Arts, and must satisfy all of the requirements for this degree. (See page 51).

Additional courses required: botany (4 credits), zoology (4), comparative anatomy (4) inorganic chemistry (4), organic chemistry (8), mathematics (6), physics (8). Courses recommended: genetics (4), embryology (4), mathematics (6 additional credits).

PHYSICS CURRICULUM

		First Semester			Second Semester		
	1st Year	R	L	C	R	L	C
MA 111, 112	Analytic Geometry and Calculus I, II	4	0	4	4	0	4
CH 111, 112	Inorganic Chemistry and Qualitative Analysis	3	3	4	3	3	4
PHY 111, 112	Physics I and II	4	0	3	4	0	3
PHY 121, 122	Physics Laboratory (biweekly)	0	2	½	0	2	½
E 101, 102	Freshman English	3	0	3	3	0	3
	Foreign Language	3	0	3	3	0	3
				17½			17½
	2nd Year						
MA 211	Analytic Geometry and Calculus III	4	0	4			
MA 212	Differential Equations				3	0	3
PHY 211, 212	Physics III and IV	4	0	3	4	0	3
PHY 221, 222	Physics Laboratory (biweekly)	0	2	½	0	2	½
	Foreign Language	3	0	3	3	0	3
	Humanities or Social Sciences			6			6
				16½			15½
	3rd Year						
PHY 311	Intermediate Mechanics	3	0	3			
PHY 312	Intermediate Electricity and Magnetism				3	0	3
PHY 322	Advanced Physics Lab. I				0	4	3
PHY 331, 332	Modern Physics	3	0	3	3	0	3
	Mathematics Elective or Phy 343, 344	3	0	3	3	0	3
	Humanities or Social Sciences			3			3
	Unspecified			3			3
				15			15

4th Year

PHY 415, 416	Thermodynamics and Statistical Mechanics I and II	3	0	3	3	0	3
PHY 421	Advanced Physics Laboratory II	0	4	3			
PHY 431	Philosophy of Science				3	0	3
	Physics Elective			3			3
	Humanities or Social Sciences			3			3
	Unspecified			3			3
				15			15

PHYSICS ELECTIVES:

PHY 351	Physical Electronics
PHY 442	Introduction to Solid State Physics
PHY 443	Physical Optics
PHY 451	Introduction to Quantum Mechanics
PHY 461	Atomic Physics
PHY 462	Nuclear Physics
PHY 490	Special Project in Physics

COLLEGE OF BUSINESS AND INDUSTRY

The College of Business and Industry offers four major programs: Business Administration, Accounting, Textile Technology, and Textile Chemistry. The programs in the Department of Business lead to the degree of Bachelor of Business Administration. The Department of Industry, which includes Textile Technology and Textile Chemistry, offers a Bachelor of Science degree.

The candidate for the degree of B.B.A. must satisfactorily complete one of the specified curricula, and must include in his program 12 semester credits in the social sciences (of which 3 should be in psychology), and 12 semester credits in the humanities (of which 6 must be in English courses beyond E 101-102).

DEPARTMENT OF BUSINESS

ACCOUNTING CURRICULUM

		First Semester			Second Semester		
	1st Year	R	L	C	R	L	C
E 101, 102	Freshman English	3	0	3	3	0	3
MA 101, 102	Elements of College Mathematics	3	0	3	3	0	3
	Foreign Language	3	0	3	3	0	3
BA 101, 102	Basic Accounting	3	2	3	3	2	3
	Humanities or Social Sciences			3			3
				15			15
	2nd Year						
ECO 231, 232	Economics	3	0	3	3	0	3
MA 231, 232	Elementary Statistics and Decision Theory	3	0	3	3	0	3
	Natural Science			3			3
	Foreign Language	3	0	3	3	0	3
BA 201	Intermediate Accounting	3	0	3			
BA 202	Advanced Accounting				3	0	3
				15			15
	3rd Year						
H 311	Economic History	3	0	3			
BA 311	Legal Framework of Business	3	0	3			
BA 321	Principles of Marketing	3	0	3			
BA 312	Business Finance				3	0	3
BA 322	Marketing Management				3	0	3
	Humanities or Social Sciences			3			6
BA 301, 302	Cost Accounting	3	0	3	3	0	3
				15			15
	4th Year						
BA 401, 402	Auditing	3	0	3	3	0	3
BA 411, 412	Taxation	3	0	3	3	0	3
BA 441, 442	Electronic Data Processing	3	0	3	3	0	3
	Humanities or Social Sciences			6			3
	Unspecified						3
				15			15

DEPARTMENT OF BUSINESS

BUSINESS ADMINISTRATION CURRICULUM

		First Semester			Second Semester		
	1st Year	R	L	C	R	L	C
E 101, 102	Freshman English	3	0	3	3	0	3
MA 101, 102	Elements of College Mathematics	3	0	3	3	0	3
	Foreign Language	3	0	3	3	0	3
BA 101, 102	Basic Accounting	3	2	3	3	2	3
	Humanities or Social Sciences			3			3
				15			15
	2nd Year						
ECO 231, 232	Economics	3	0	3	3	0	3
MA 231, 232	Elementary Statistics and Decision Theory	3	0	3	3	0	3
	Natural Science			3			3
	Foreign Language	3	0	3	3	0	3
BA 221	Theory of Administration	3	0	3			
BA 222	Managerial Economics				3	0	3
				15			15
	3rd Year						
H 311	Economic History	3	0	3			
BA 311	Legal Framework of Business	3	0	3			
BA 321	Principles of Marketing	3	0	3			
BA 312	Business Finance				3	0	3
BA 322	Marketing Management				3	0	3
	Humanities or Social Sciences			3			6
	*Field of Concentration			3			3
				15			15
	4th Year						
BA 421	Labor Management	3	0	3			
BA 422	Personnel Management and Industrial Relations				3	0	3
BA 431	Business Policy	3	0	3			
BA 432	Administrative Practices				3	0	3
	Humanities or Social Sciences			3			6
	*Field of Concentration			3			3
	Unspecified			3			
				15			15

*There are two options for the Business Administration curriculum. Students in this curriculum must select one of these options for their field of concentration. The following courses are requirements for the degree:

Marketing Option

BA 331, 332	Advertising and Selling	6 credits
BA 451, 452	Marketing Research	6 credits

Management Option

BA 341	Production Management	3 credits
BA 342	Time and Motion Study	3 credits
BA 461	Industrial Management	3 credits

Business Electives (select from following) — 3 credits

BA 351	Real Estate
BA 352	Business Cycles and Forecasting
BA 471	Corporation Law
BA 472	Insurance Fundamentals
BA 481	Seminar

DEPARTMENT OF INDUSTRY

TEXTILE TECHNOLOGY CURRICULUM

		First Semester			Second Semester		
	1st Year	R	L	C	R	L	C
E 101, 102	Freshman English	3	0	3	3	0	3
CH 101, 102	General Chemistry	3	2	4	3	2	4
MA 101, 102	Elements of College Mathematics	3	0	3	3	0	3
ME 101	Engineering Drawing				0	6	2
	*Humanities or Social Sciences			6			3
				16			15
	2nd Year						
PHY 201, 202	General Physics	3	0	3	3	0	3
PHY 203, 204	General Physics Laboratory	0	2	1	0	2	1
TT 201, 202	Yarn Technology	2	2	3	2	2	3
TT 211, 212	Fabric Technology	3	1	3	3	1	3
TT 231, 232	Knit Technology	2	1	2	2	1	2
TT 221, 222	Design and Structure	3	2	3	1	3	2
	*Humanities or Social Sciences			3			3
				18			17
	3rd Year						
BA 461	Industrial Management	3	0	3			
TT 301, 302	Yarn Technology	2	2	3	2	2	3
TT 311, 312	Fabric Technology	3	1	3	3	1	3
TT 321, 322	Design and Structure	3	2	3	3	2	3
TC 322	Application of Dyes	2	0	2			
TC 323	Finishing Technology				2	0	2
	*Humanities or Social Sciences			3			6
				17			17
	4th Year						
TT 472	Professional Expression				3	0	3
TT 431	Physical Testing	2	3	3			
TT 401	Yarn Technology	2	2	3			
TT 411	Fabric Technology	1	2	2			
TT 421	Design and Structure	3	2	3			
TT 452	Quality Control				3	0	3
TT 462	Microscopy				2	3	3
	*Humanities or Social Sciences			3			3
	Unspecified			3			3
				17			15

*The candidate for the degree in the Textile Technology curriculum must satisfy the distribution requirement for the B.A. candidate.

Textile Electives:

TT 402	Applied Yarn Technology
TT 482	Fabric Research Development and Design
TT 491	Time and Motion Study
TT 492	Textile Cost Accounting
TT 351	Textile Merchandising and Marketing
TT 481	Plant Engineering
TT 352	Introduction to Statistics for Engineers

DEPARTMENT OF INDUSTRY

TEXTILE CHEMISTRY CURRICULUM

		First Semester			Second Semester		
	1st Year	R	L	C	R	L	C
MA 111, 112	Analytic Geometry and Calculus I and II	4	0	4	4	0	4
CH 111, 112	Inorganic Chemistry and Qualitative Analysis	3	3	4	3	3	4
PHY 111, 112	Physics I and II	4	0	3	4	0	3
PHY 121, 122	Physics Laboratory (biweekly)	0	2	½	0	2	½
E 101, 102	Freshman English	3	0	3	3	0	3
	Foreign Language	3	0	3	3	0	3
				17½			17½
	2nd Year						
MA 211	Analytic Geometry and Calculus III	4	0	4			
MA 212	Differential Equations				3	0	3
CH 211, 212	Organic Chemistry	3	6	4	3	6	4
PHY 211, 212	Physics III and IV	4	0	3	4	0	3
PHY 221, 222	Physics Laboratory (biweekly)	0	2	½	0	2	½
	Foreign Language	3	0	3	3	0	3
	*Humanities or Social Sciences			3			3
				17½			16½
	3rd Year						
CH 301	Quantitative Analysis	2	6	4			
CH 302	Instrumental Analysis				3	4	4
CH 311, 312	Physical Chemistry	4	4	5	4	4	5
	*Humanities or Social Sciences			6			3
TC 302	Elementary Dyeing				2	3	3
				15			15
	4th Year						
CH 411	Chemical Literature and Report Writing				3	0	3
TC 401	Advanced Dyeing	2	2	3			
TC 411	Textile Printing	2	3	3			
TT 451	Microscopy and Testing	2	3	3			
TC 421, 422	Chemical Technology of Finishing	2	3	3	2	3	3
TC 431, 432	Industrial Chemical Analysis	2	3	3	2	3	3
TC 442	Chemistry of Fibers				2	2	3
TC 452	Textile Microbiology				2	4	3
				15			15

*Majors in Textile Chemistry must take at least 6 semester credits in English literature and 6 semester credits in social sciences.

COLLEGE OF ENGINEERING

The engineering curricula recognizes the technological and social responsibilities that each graduate must accept on entering the engineering profession. The technological goal of the engineering programs is the preparation for the performance of the functions of analysis and creative design, or the functions of production and operations. This requires a mastery of fundamental scientific and mathematical principles associated with engineering. The social goal includes the development of leadership, the inculcation of a deep sense of professional ethics, and an understanding of the evolution of society and the impact of technology on it.

The College of Engineering offers four major programs: civil, electrical, industrial and mechanical engineering. The student who satisfactorily completes the curriculum for one of these majors will receive a Bachelor of Science degree. Every engineering student must include in his program 9 semester credits in the humanities (6 semester credits must be in English literature) and 6 semester credits in the social sciences.

CIVIL ENGINEERING CURRICULUM

		First Semester			Second Semester		
	1st Year	R	L	C	R	L	C
MA 111, 112	Analytic Geometry and Calculus I and II	4	0	4	4	0	4
PHY 111, 112	Physics I and II	4	0	3	4	0	3
PHY 121, 122	Physics Laboratory (biweekly)	0	2	½	0	2	½
CH 111, 112	Ironganic Chemistry and Qualitative Analysis	3	3	4	3	3	4
E 101, 102	Freshman English	3	0	3	3	0	3
ME 101	Engineering Drawing	0	6	2			
ME 102	Descriptive Geometry				2	3	3
				16½			17½
	2nd Year						
MA 211	Analytic Geometry and Calculus III	4	0	4			
MA 212	Differential Equations				3	0	3
PHY 211, 212	Physics III and IV	4	0	3	4	0	3
PHY 221, 222	Physics Laboratory (biweekly)	0	2	½	0	2	½
ME 231, 232	Applied Mechanics	3	0	3	3	0	3
CE 211	Surveying	3	3	4	2	3	3
	Humanities or Social Sciences			3			3
				17½			15½
	3rd Year						
CE 311	Strength of Materials	4	3	5			
ME 311	Thermodynamics	3	0	3			
ME 332	Fluid Mechanics				3	0	3
EE 301	Elements of Electrical Engineering I	3	2	4			
CE 301	Geology	2	2	3			
CE 322	Soil Mechanics				3	2	4
CE 312	Structural Theory				3	0	3
CE 342	Sanitary Engineering				3	0	3
	Humanities or Social Sciences			3			3
				18			16
	4th Year						
IE 401	Engineering Economy	3	0	3			
CE 411	Highway Engineering	3	0	3			
	Technical Elective			7			7
	Humanities or Social Sciences			3			3
	Unspecified						6
				16			16

Technical Electives:

CE 421, 422	Advanced Structural Theory I, II
CE 431, 432	Structural Design I, II
CE 441	Reinforced Concrete
CE 442	Prestressed Concrete
CE 452	Foundations
CE 462	Hydraulic Structures
CE 472	Hydraulics
CE 481	Water Supply
CE 482	Sewage Disposal
CE 491	Sanitary Bacteriology

ELECTRICAL ENGINEERING CURRICULUM

		First Semester			Second Semester		
	1st Year	R	L	C	R	L	C
MA 111, 112	Analytic Geometry and Calculus I and II	4	0	4	4	0	4
PHY 111, 112	Physics I and II	4	0	3	4	0	3
PHY 121, 122	Physics Laboratory (biweekly)	0	2	½	0	2	½
CH 111, 112	Inorganic Chemistry and Qualitative Analysis	3	3	4	3	3	4
E 101, 102	Freshman English	3	0	3	3	0	3
ME 101	Engineering Drawing	0	6	2			
ME 102	Descriptive Geometry				2	3	3
				16½			17½
	2nd Year						
MA 211	Analytic Geometry and Calculus III	4	0	4			
MA 212	Differential Equations				3	0	3
PHY 211, 212	Physics III and IV	4	0	3	4	0	3
PHY 221, 222	Physics Laboratory (biweekly)	0	2	½	0	2	½
ME 231, 232	Applied Mechanics	3	0	3	3	0	3
EE 201, 202	Circuit Theory I	3	0	3	3	0	3
EE 252	Electrical Engineering Laboratory I				0	6	2
	Humanities or Social Sciences			3			3
				16½			17½
	3rd Year						
EE 362	Electromagnetic Theory I				3	0	3
EE 321	Circuit Theory III	3	0	3			
EE 311, 312	Electronics I and II	3	0	3	3	0	3
EE 351, 352	Electrical Engineering Laboratory II and III	0	6*	2	0	6*	2
EE 332	Energy Conversion Devices				3	0	3
ME 332	Fluid Mechanics				3	0	3
MA 321	Advanced Engineering Mathematics	3	0	3			
ME 311	Thermodynamics	3	0	3			
	Humanities or Social Sciences			3			3
				17			17
	4th Year						
EE 431, 432	Feedback Systems I and II	3	0	3	3	0	3
EE-411	Electronics III	3	0	3			
EE 451, 452	Electrical Engineering Laboratory IV and V	0	6*	2	0	6*	2
EE 462	Physical Electronics of Materials				3	0	3
	Humanities or Social Sciences			3			3
	Technical Elective			3			6
	Unspecified			3			
				17			17

*Including outside work.

Technical Electives:

EE 401, 402	Introduction to Network Synthesis I and II
EE 412	Wave Forming Circuits
EE 421	Microwave Theory
EE 441	Advanced Electric Machinery
EE 442	Semi conductor Circuits
EE 461	Logic Circuit Design
EE 463	Electromagnetic Theory II
EE 464	Introductory Digital Computer Programming
EE 471, 472	Introduction to Communication Theory I and II
EE 482	Electric Power Systems
EE 483	Linear System Analysis

Note: Electives in physics and mathematics as approved.

INDUSTRIAL ENGINEERING CURRICULUM

		First Semester			Second Semester		
	1st Year	R	L	C	R	L	C
MA 111, 112	Analytic Geometry and Calculus I and II	4	0	4	4	0	4
PHY 111, 112	Physics I and II	4	0	3	4	0	3
PHY 121, 122	Physics Laboratory (biweekly)	0	2	½	0	2	½
CH 111, 112	Inorganic Chemistry and Qualitative Analysis	3	3	4	3	3	4
E 101, 102	Freshman English	3	0	3	3	0	3
ME 101	Engineering Drawing	0	6	2			
ME 102	Descriptive Geometry				2	3	3
				16½			17½
	2nd Year						
MA 211	Analytic Geometry and Calculus III	4	0	4			
MA 212	Differential Equation				3	0	3
PHY 211, 212	Physics III and IV	4	0	3	4	0	3
PHY 221, 222	Physics Laboratory (biweekly)	0	2	½	0	2	½
ME 231, 232	Applied Mechanics	3	0	3	3	0	3
ME 221	Manufacturing Processes	2	3	3			
ME 222	Metallurgy				3	2	4
ECO 231	Economics	3	0	3			
	Humanities or Social Sciences						3
				16½			16½
	3rd Year						
CE 321	Mechanics of Materials	3	0	3			
ME 311	Thermodynamics	3	0	3			
ME 332	Fluid Mechanics				3		3
ME 302	Mechanism				2	3	3
BA 361	Industrial Accounting	3	0	3			
IE 321, 322	Engineering Statistics and Quality Control	3	0	3	3	0	3
IE 312	Time and Motion Study				2	3	3
IE 331	Personnel Administration	3	0	3			
	Humanities or Social Sciences			3			6
				18			18

	4th Year	First Semester R	L	C	Second Semester R	L	C
EE 301	Elements of Electrical Engineering I	3	2	4			
EE 302	Elements of Electrical Engineering II				3	2	4
IE 401	Engineering Economy	3	0	3			
BA 431	Business Policy				3	0	3
BA 461	Industrial Management	3	0	3			
IE 422	Plant Design and Layout				2	3	3
	Humanities or Social Sciences			3			3
	Unspecified			3			3
				16			16

INDUSTRIAL ELECTIVES:

IE 431	Linear Programming
IE 421	Wage Incentives and Job Evaluation

MECHANICAL ENGINEERING CURRICULUM

		First Semester			Second Semester		
	1st Year	R	L	C	R	L	C
MA 111, 112	Analytic Geometry and Calculus I and II	4	0	4	4	0	4
PHY 111, 112	Physics I and II	4	0	3	4	0	3
PHY 121, 122	Physics Laboratory (biweekly)	0	2	½	0	2	½
CH 111, 112	Inorganic Chemistry and Qualitative Analysis	3	3	4	3	3	4
E 101, 102	Freshman English	3	0	3	3	0	3
ME 101	Engineering Drawing	0	6	2			
ME 102	Descriptive Geometry				2	3	3
				16½			17½
	2nd Year						
MA 211	Analytic Geometry and Calculus III	4	0	4			
MA 212	Differential Equations				3	0	3
PHY 211, 212	Physics III and IV	4	0	3	4	0	3
PHY 221, 222	Physics Laboratory (biweekly)	0	2	½	0	2	½
ME 231, 232	Applied Mechanics	3	0	3	3	0	3
ME 221	Manufacturing Processes	2	3	3			
ME 222	Metallurgy				3	2	4
ME 211	Machine Drawing	1	3	2			
	Humanities or Social Sciences			3			3
				18½			16½
	3rd Year						
CE 311	Strength of Materials	4	3	5			
ME 321, 322	Engineering Thermodynamics I and II	3	0	3	3	0	3
ME 332	Fluid Mechanics				3	0	3
ME 302	Mechanism				2	3	3
EE 301	Elements of Electrical Engineering I	3	2	4			
EE 302	Elements of Electrical Engineering II				3	2	4
ME 342	Mechanical Engineering Laboratory I				0	3	1
	Humanities or Social Sciences			3			3
				15			17
	4th Year						
ME 411	Heat Transfer	3	0	3			
ME 441	Mechanical Engineering Laboratory II	0	3	1			
ME 421	Machine Design I and II	3	0	3	3	0	3
	Technical Elective			6			6
	Humanities or Social Sciences			3			3
	Unspecified						3
				16			15

Technical Electives:

ME 401	Advanced Kinematics
ME 412	Thermodynamics III
ME 432	Vibrations
ME 451	Advanced Strength of Materials
ME 452	Experimental Stress Analysis
ME 431	Internal Combustion Engines
EE 464	Introductory Digital Computer Programming
EE 482	Electric Power Systems
EE 483	Linear System Analysis

COLLEGE OF FINE AND APPLIED ARTS

The College of Fine and Applied Arts offers three majors (Visual Design, Textile Design, and Painting) all leading to the degree of Bachelor of Fine Arts. To qualify for this degree a student must satisfactorily complete one of the three curricula and satisfy the quality requirement set for all graduates. He must also satisfy the distribution requirement for the B.A. degree. Six credits of History of Art may be counted toward the distribution requirement for humanities.

VISUAL DESIGN CURRICULUM

		First Semester			Second Semester		
	1st Year	R	L	C	R	L	C
ART 111, 112	Foundation Color and Design	0	6	3	0	6	3
ART 121, 122	Foundation Drawing	0	6	3	0	6	3
ART 131	Ancient Art	3	0	3			
ART 132	Medieval and Renaissance Art				3	0	3
E 101, 102	Freshman English	3	0	3	3	0	3
	Humanities or Social Sciences			3			3
				15			15
	2nd Year						
ART 221, 222	Figure Drawing I	0	6	2	0	6	2
ART 241, 242	Painting	0	6	2	0	6	2
ART 251, 252	Visual Design I	0	6	3	0	6	3
ART 224	Structural Representation				0	6	3
ART 231	Baroque through Impressionism Art	3	0	3			
	Humanities or Social Sciences			6			6
				16			16
	3rd Year						
ART 351, 352	Visual Design II	0	9	4	0	9	4
ART 323, 324	Illustration	0	6	3	0	6	3
	or						
ART 363, 364	Fashion Illustration	0	6	3	0	6	3
ART 381	Photography I	1	2	2			
ART 382	Photography II				0	4	2
	or						
ART 386	Typography				0	6	2
	or						
ART 322	Figure Drawing II				0	6	2
ART 383	Graphic Reproduction	2	0	2			
ART 332	Contemporary Art				3	0	3
	Natural Science			3			3
				14			15
	4th Year						
ART 451, 452	Visual Design III	0	15	7	0	15	7
ART 423, 424	Advanced Illustration	0	6	3	0	6	3
	or						
ART 485, 486	Advanced Typography	0	6	3	0	6	3
	or						
ART 481, 482	Advanced Photography	0	6	3	0	6	3
ART 483, 484	Printmaking	0	6	2	0	6	2
	Humanities or Social Sciences			3			3
				15			15

TEXTILE DESIGN CURRICULUM

		First Semester			Second Semester		
	1st Year	R	L	C	R	L	C
ART 111, 112	Foundation Color and Design	0	6	3	0	6	3
ART 121, 122	Foundation Drawing	0	6	3	0	6	3
ART 131	Ancient Art	3	0	3			
ART 132	Medieval and Renaissance Art				3	0	3
E 101, 102	Freshman English	3	0	3	3	0	3
	Humanities or Social Sciences			3			3
				15			15
	2nd Year						
ART 221, 222	Figure Drawing I	0	6	2	0	6	2
ART 241, 242	Painting I	0	6	2	0	6	2
ART 271, 272	Textile Design I	0	9	4	0	9	4
ART 231	Baroque through Impressionism Art	3	0	3			
	Humanities or Social Sciences			6			6
				17			14
	3rd Year						
ART 371, 372	Textile Design II	0	9	4	0	9	4
TT 331, 332	Textile Technology	2	0	2	2	0	2
TT 341, 342	Fabric Construction I	3	0	3	3	0	3
ART 373, 374	Handloom Weaving I	0	6	2	0	6	2
ART 332	Contemporary Art				3	0	3
	Natural Science			3			3
				14			17
	4th Year						
ART 471, 472	Textile Design III	0	15	7	0	15	7
TT 441, 442	Fabric Construction II	3	0	3	3	0	3
ART 473, 474	Handloom Weaving II	0	6	2	0	6	2
	Humanities or Social Sciences			3			3
				15			15

PAINTING CURRICULUM

		First Semester			Second Semester		
	1st Year	R	L	C	R	L	C
ART 111, 112	Foundation Color and Design	0	6	3	0	6	3
ART 121, 122	Foundation Drawing	0	6	3	0	6	3
ART 131	Ancient Art	3	0	3			
ART 132	Medieval and Renaissance Art				3	0	3
E 101, 102	Freshman English	3	0	3	3	0	3
	Humanitines or Social Sciences			3			3
				15			15
	2nd Year						
ART 221, 222	Figure Drawing I	0	6	2	0	6	2
ART 241	Painting I	0	6	2			
ART 244	Painting				0	12	5
ART 225, 226	Drawing	0	6	3	0	6	3
ART 231	Baroque through Impressionism Art	3	0	3			
	Humanities or Social Sciences			6			6
				16			16
	3rd Year						
ART 341, 342	Painting II	0	15	7	0	15	7
ART 321, 322	Figure Drawing II	0	6	2	0	6	2
ART 311, 312	Composition	0	6	3	0	6	3
ART 332	Contemporary Art				3	0	3
	Natural Science			3			3
				15			18
	4th Year						
ART 441, 442	Painting III	0	15	7	0	15	7
ART 483, 484	Printmaking	0	6	2	0	6	2
ART 421, 422	Figure Drawing III	0	6	2	0	6	2
	Humanities or Social Science			3			3
				14			14

DIRECTORY OF COURSES

Biology

COLLEGE OF ARTS AND SCIENCES

BIO 101, 102 GENERAL BIOLOGY I, II Cr. 3-3 (3-0) (3-0)

A survey of the more important generalizations of biology. Universal phenomena characteristic of all living organisms, fundamentals of morphology and physiology including genetics and evolution. This course satisfies the liberal arts natural science requirement but is not acceptable for Biology Department majors.

BIO 121 THE BIOLOGY OF ORGANISMS Cr. 4-0 (3-2) 0-0)

An analysis of the adaptations of protista, plants and animals at behavioral, structural and physiological levels. Consideration of size, growth, energy capture and storage, reproduction, communication, integration and locomotion. Emphasis on the understanding of each topic in the light of contemporary evolutionary theory.

BIO 122 THE BIOLOGY OF CELLS Cr. 0-4 (0-0) (3-2)

An inquiry into the morphology and function of cell ultrastructure; organic and inorganic cell components, cellular control mechanisms, including information storage, replication and utilization. The membrane systems and their role in exchange of materials. A consideration of energy transfer.

BIO 221, 222 ANATOMY AND PHYSIOLOGY Cr. 4-4 (3-2) (3-2)

A systematic study of the human body with emphasis on the normal structures and functions. Required of all second year medical technology majors.

Prerequisites: BIO 101, 102 or BIO 121, 122.

BIO 231 GENETIC MECHANICS Cr. 3-0 (3-0) (0-0)

An inquiry into the nature of genetic material. The transmission and action of nucleic acids. Emphasis on the molecular aspects of heredity and the transmission of genetic material in bacteria and bacteriophages.

BIO 232 THE BIOLOGY OF POPULATIONS Cr. 0-4 (0-0) (3

The growth, distributional and behavioral characteristics of pla microbial, and animal populations. Distribution in space a time. Laboratory and field studies of selected populations w emphasis on the study of mathematical models and populations insects and micro-organisms.

BIO 311, 312 MEDICAL TECHNOLOGY SEMINAR I, II Cr. 1-1 (1-0) (1

Discussion and presentation of selected biological topics in field of medical technology. Required of all third year med technology majors.

Prerequisite: completion of the first two years of the medical technology curriculum.

BIO 313 COMPARATIVE PHYSIOLOGY Cr. 4-0 (3-3) (0-0)

Adaptations in physiological mechanisms as illustrated by sel ed vertebrate and invertebrate species. Regulatory mechanis muscle action, gas exchange, nerve action, membranes, circulat and metabolism.

BIO 314 GENERAL ECOLOGY Cr. 0-4 (0-0) (2-5)

The biology of populations, communities, ecosystems and biosphere. Distribution of organisms in space and time. regulation of the environment by organisms and the influe of environment upon organisms. Consideration of energy fl biogeochemical cycles. Laboratory and field studies of terrest fresh water and marine environments. Extended field trips, so of which will be held on weekends and/or holidays, are an in gral part of this course.

BIO 315 THE BIOLOGY OF ALGAE Cr. 4-0 (2-5) (0-0)

A survey of the principal taxa of marine, estuarine and fr water algae. Emphasis will be placed on analysis of struct and identification of the more common species of algae of no eastern U. S. and adjacent waters. Extended field trips, some which will be held on weekends and/or holidays, are an inte part of this course.

BIO 317 THE BIOLOGY OF INVERTEBRATE ANIMALS
Cr. 4-0 (3-3) (0-0)
An intensive survey of the taxonomy, morphology and function of the major invertebrate phyla. Field studies will emphasize the ecology and adaptions of marine invertebrates of the North Atlantic coast. Extended field trips, some of which will be held on weekends and/or holidays, are an integral part of this course.

BIO 321 APPLIED MICROBIOLOGY Cr. 4-0 (3-2) (0-0)
A study of the morphological and physiological characteristics of bacteria, fungi, ricketsia, and viruses. Required of all third year medical technology majors.
Prerequisites: BIO 121, 122 or BIO 101, 102

BIO 332 DIAGNOSTIC BACTERIOLOGY Cr. 0-3 (0-0) (1-4)
A study of human pathogens and common diagnostic procedures. Required of all third year medical technology majors.
Prerequisites: BIO 321 CH 211

BIO 411 PROSEMINAR: CURRENT TOPICS IN BIOLOGY
Cr. 3-0 (3-0) (0-0)
Student presentation and discussion of current biological problems. An introduction to some of the principal biological journals, abstracts and reviews.

BIO 413 THE BIOLOGY OF FISHES Cr. 4-0 (2-5) (0-0)
The classification, life histories and ecology of fishes with emphasis on the study of representative species of the Northeastern states and their coastal waters. Extended field trips, some of which will be held on weekends and/or holidays, are an integral part of this course.

BIO 414 THE PHYSIOLOGY OF CELLS Cr. 0-4 (0-0) (3-3)
The function of cells. An advanced treatment of thermodynamic aspects of cellular function. The function of mitochondria, enzyme systems and membranes. The function of neurones, muscle cells, blood cells and other specialized cells.

BIO 415 LIMNOLOGY AND OCEANOGRAPHY Co. 4-0 (2-5) (0-0)
The physics and chemistry of lakes, ponds, rivers, estuaries and oceans. Emphasis on the measurement and analysis of chemical and physical characteristics of water masses. The impact of physical and chemical factors on the distribution of organisms. Extended field trips, some of which will be held on weekends and/or holidays, are an integral part of this course.

BIO 421 DEVELOPMENTAL BIOLOGY (4-0) (3-3) (0-0)
Growth, cellular differentiation, morphogenesis and senesce in multicellular organisms. Laboratory studies will emphasize scriptive and experimental studies of selected vertebrate embry Slime molds and invertebrates will also be utilized.

Chemistry

COLLEGE OF ARTS AND SCIENCES

CH 101, 102 GENERAL CHEMISTRY Cr. 4-4 (3-2) (3-2)
An introductory course in chemistry required for all students the textile technology curriculum. It comprises a general sur of chemistry, its basic laws and theories.

CH 111, 112 INORGANIC CHEMISTRY AND QUALITATIVE ANALYSIS Cr. 4-4 (3-3) (3-3)
A lecture and laboratory course dealing with the laws theories of chemistry. It will include an introduction to qu tative analysis.

CH 211, 212 ORGANIC CHEMISTRY Cr. 4-4 (3-6) (3-6)
A systematic study of the chemistry of the compounds of carl as presented by the more prominent authorities in the orga field.
Prerequisite: CH 112

CH 301 QUANTITATIVE ANALYSIS Cr. 4-0 (2-6) (0-0)
The student applies the standard methods of gravimetric volumetric analysis to typical inorganic salts, alloys, minerals, a and bases. Routine chemical calculations form an integral of the work.
Prerequisite: CH 112

CH 302 INSTRUMENTAL ANALYSIS Cr. 0-4 (0-0) (3-4)
A study of the methods of analysis involving the use of spe instruments such as the polarograph, spectrograph, turbidime spectrophotometers and instruments dealing with radio chemis
Prerequisite: CH 301

CH 311, 312 PHYSICAL CHEMISTRY Cr. 5-5 (4-3) (4-3)

A study of the laws of chemistry and physics supplemented by laboratory work and numerous problems.

Prerequisite: CH 112, MA 102

CH 322 ORGANIC IDENTIFICATION Cr. 0-3 (0-0) (1-6)

A study of the systematic identification of organic compounds supplemented by extensive laboratory work and identification problems.

Prerequisites: CH 341 and simultaneous study of CH 342

CH 331 UNIT PROCESSES Cr. 3-0 (3-0) (0-0)

A course in the fundamental industrial operations and chemical processes, dealing with chemical calculations with engineering aspects in mind.

Prerequisite: CH 112

CH 332 ADVANCED INORGANIC CHEMISTRY Cr. 0-3 (0-0) (3-0)

Modern theories of atomic and molecular structure, coordination compounds, quantum mechanics, and other factors which explain the reactions of inorganic compounds.

Prerequisite: CH 112

CH 341, 342 ORGANIC MECHANISM Cr. 3-3 (3-0) (3-0)

A study of the structure and reactions of organic molecules using modern orbital and resonance theories.

Prerequisite: CH 212

CH 351 ORGANIC MICRO-QUANTITATIVE ANALYSIS Cr. 3-0 (1-6) (0-0)

The quantitative determination, on a microscale, of the elements and one or two of the groups commonly present in organic compounds.

Prerequisite: CH 301, CH 212

CH 352 ORGANIC PREPARATIONS Cr. 0-3 (0-0) (1-6)

The more intricate synthetic methods of organic chemistry are studied. The search of the literature of chemistry for the best synthetic methods for a given compound is stressed.

Rrerequisite: CH 212

CH 361, 362 BIOCHEMISTRY I, II Cr. 4-4 (3-3) (3-3)

The chemistry and metabolism of proteins, carbohydrates, lipic and other natural products.

Prerequisite: CH 212

CH 372 INDUSTRIAL CHEMISTRY Cr. 0-3 (0-0) (2-3)

Lectures are supplemented by field trips, films, and guest speake

Prerequisite: CH 112

CH 411 CHEMICAL LITERATURE AND REPORT WRITING Cr. 3-0 (3-0) (0-

A survey of the fundamental reference works and literature chemistry with exercises in the use of these sources.

Prerequisites: CH 112, CH 212, and one year of German

CH 421, 422 INTRODUCTION TO RESEARCH Cr. 3-5 (0-9 to 15) (0-9 to 1

Students who have research ability are encouraged and assisted undertaking an original investigation under the direction of interested instructor. Elective.

Prerequisite: Departmental Permission.

Economics

COLLEGE OF ARTS AND SCIENCES

ECO 101 PRINCIPLES OF ECONOMICS Cr. 3-0 (3-0) (0-0)

A survey of economics for students who do not plan to ta additional work in economics. An institutional approach tl introduces the student to basic concepts and the economic crite applicable to the functions and processes of the Americ economy.

ECO 231 ECONOMICS I Cr. 3-0 (3-0) (0-0)

This course is included toward a macro-economic analysis of t principles of economics and application of analysis to curr problems in our economy. Emphasis is given to national inco and product totals, determination of level of income, employme production, economic growth, economic fluctuations, monet and fiscal policy, the level of prices, and allocation of resourc

ECO 232 ECONOMICS II Cr. 0-3 (0-0) (3-0)

A continuation of ECO 231. Stress on micro and macro aspects of money, monetary policy, economic stability, economic growth and policy goals, income distribution, the public economy, and international trade and finance.

ECO 332 CONTEMPORARY ECONOMIC ISSUES Cr. 0-3 (0-0) (3-0)

Analysis of selected current economic issues and their implications for the American economy, both for short and long run views. Emphasis on developing student's ability to apply economic principles to problems of our economy with analysis of policy criteria.

Prerequisite: ECO 232

ECO 342 LABOR ECONOMICS Cr. 0-3 (0-0) (3-0)

A study of the history and organization of unions, their aims and methods, and the process and results of collective bargaining. Special attention will be given to public policy towards labor relations.

Prerequisite: ECO 101 or ECO 231

English

COLLEGE OF ARTS AND SCIENCES

E 101, 102 FRESHMAN ENGLISH Cr. 3-3 (3-0) (3-0)

The aim of this course is to develop the student's ability to write clear, correct, effective English that reflects logical thinking and mature judgment.

A complementary reading program provides examples from literature illustrating principles of writing and affords experience in analysis and oral interpretation.

E 201, 202 SURVEY OF ENGLISH LITERATURE I, II Cr. 3-3 (3-0) (3-0)

The first semester of this course covers the major writers in the English tradition from Anglo-Saxon times to the beginning of the eighteenth century.

The second semester covers the major writers from the beginning of the eighteenth century to the present.

E 312 SHAKESPEARE Cr. 0-3 (0-0) (3-0)

The course is concerned with the careful reading of from ten twelve of Shakespeare's plays selected from the histories, comedie and tragedies.

E 313 ENGLISH, THE ROMANTIC AGE Cr. 3-0 (3-0) (0-(

A survey of English literature from 1798 to 1832, stressing tl major poets (Blake, Wordsworth, Coleridge, Bryon, Shelly, Keats with some study of novels and personal essays.

E 321 MODERN DRAMA Cr. 3-0 (3-0) (0-0)

The course is designed to acquaint the student with works important modern dramatists from Ibsen and Chekov through su near-contemporaries or contemporaries as Shaw, Fry, Anouilh, Gi audoux, T. S. Eliot, Arthur Miller, and Tennessee Williams. Er phasis is placed on the changes and developments in dramat technique that have occurred in recent years.

E 322 MILTON'S POETRY AND SELECTED PROSE Cr. 0-3 (0-0) (3-

A study of Milton's poetic achievement based on the reading selected minor poems and their developmental relationship PARADISE LOST, PARADISE REGAINED, and SAMSO AGONISTES.

E 331 CHAUCER Cr. 3-0 (3-0) (0-0)

Intensive reading and critical analysis of THE CANTERBUR TALES, along with studies in TROLLUS AND CRISEYDE a the lesser known works.

E 332 CONTEMPORARY POETRY Cr. 0-3 (0-0) (3-0)

An analysis of selected writings of contemporary poets, design to introduce the student to such poets as T. S. Eliot, Robert Fro Dylan Thomas, Gerard Manley Hopkins, Marianne Moore, Ogd Nash, Robert Bly, George Oppen and others.

CONTEMPORARY LITERATURE Cr. 3-0 (3-0) (0-0)

E 341 Selected American and European novels, dramas, and verse w be studied intensively as individual creative works and as e pressions of contemporary thought.

E 342 THE AMERICAN NOVEL Cr. 0-3 (0-0) (3-0)

A study of the historical development of the American novel from Cooper to Hemingway to derive criteria for the appreciation of the form and content of the masters of American prose fiction.

E 351 THE ESSAY Cr. 3-0 (3-0) (0-0)

Appreciation of the essay as a literary form is gained by an analysis of its requirements, its origin, and its development, through readings of the masters from Montaigne and Bacon to the present.

E 352 THE SHORT STORY Cr. 0-3 (0-0) (3-0)

After an introductory consideration of the nature of the short story as a form of literature, a diverse reading program of this fiction is undertaken, beginning with the forerunners of the modern short story — Irving, Poe, Hawthorne, and Harte — and advancing to contemporaries.

E 361 MASTERPIECES OF WORLD LITERATURE Cr. 3-0 (3-0) (0-0)

This course covers a study of selected classics from the Golden Age of Greece to the twentieth century. Emphasis is placed upon some of the fundamental ideas and literary forms that are an important part of the heritage of Western civilization.

E 362 THE ENGLISH NOVEL Cr. 0-3 (0-0) (3-0)

A study of types of fiction popular in the eighteenth and nineteenth centuries and the reading of major works of the period. Some consideration of the novel as an art form and of its interaction with historical developments.

E 371 SURVEY OF AMERICAN LITERATURE Cr. 3-0 (3-0) (0-0)

A survey of selected American writers from the Colonial Period to the present. Emphasis is placed upon the development of characteristic literary forms and upon ideas important in the evolution of American thought.

E 372 MAJOR WRITERS IN ENGLISH LITERATURE Cr. 0-3 (0-0) (3-0)

A study of carefully-selected, outstanding writers from Chaucer to the present. Emphasis is on representative and enduring masters whose contributions to the history and development of English literature have been significent and pleasurable.

E 382 STUDIES IN AMERICAN LITERATURE AND THE AR
Cr. 0-3 (0-0) (3

This course relates the literary and artistic expressions of Am
can culture, so that the literature is complemented and
hanced by an examination of the art and architecture. Throu
various literary works and a discussion of representative art
and architects, the course will investigate the role of the a
and the artist as creator, carrier, and critic of American cultu
Five selected periods will be emphasized.

E 391 TWENTIETH CENTURY BRITISH NOVEL
Cr. 3-0 (3-0) (0

A study of the twentieth century British novel includes the f
lowing writers: Joseph Conrad, Virginia Woolf, James Joy
D. H. Lawrence, E. M. Forster, Aldous Huxley, Evelyn Wau
Joyce Cary, Graham Greene, and Kingsley Amis.

E 392 STUART DRAMA Cr. 0-3 (0-0) (3-0)

A study of some of the leading English dramatists from the asc
sion of James I to the throne in 1603 to the closing of the theat
in 1642. Playwrights to be considered include: Jonson, Be
mont, Fletcher, Chapman, Webster, Marston, Dekker, and H
wood.

E 401 PUBLIC SPEAKING Cr. 0-2 (0-0) (2-0)

The technique of oral explanation is scientifically undertal
through a study of effective principles combined with speak
practice. The student is afforded the means to gain confidence,
think on his feet in emergencies, and to know how to handle a
speaking assignment.

E 411 THE TRANSCENDENTAL MOVEMENT IN AMERICAN
LITERATURE Cr. 3-0 (3-0) (0-0)

The writings of Emerson and Thoreau will receive special att
tion, although the general character of the movement will be
plored.

E 412 THE ARTHUR OF THE ENGLISH POETS
Cr. 0-3 (0-0) (3

A comparative study of English literature dealing with K
Arthur and the Knights of the Round Table. Works such
SIR GAWAIN AND THE GREEN KNIGHT, Malo
"MORTE d'ARTHUR," Tennyson's IDYLLS OF THE KI

and Morris' DEFENSE OF GUINEVERE will be read with emphasis on the transformation of Arthur from noble hero with his knights to decadent king and his improper court.

E 421 THE ENGLISH NOVEL TO 1880 Cr. 3-0 (3-0) (0-0)

A historical survey of the novel in England, from its beginnings in the eighteenth century until 1880. About ten works will be discussed in class, including novels by Fielding, Austen, Emily Bronte, Dickens, Thackeray, and several others. In addition, a study of several works by one author will be required of each student.

E 422 WORLD LITERATURE — CLASSICAL GREECE TO THE RENAISSANCE Cr. 0-3 (0-0) (3-0)

Students will read in translation the foreign classics, from Classical Greece to the Renaissance, that have had most influence on the thought of the modern Western World, with special emphasis on the works of Homer, the Greek Dramatists, Vergil, and Dante.

History

COLLEGE OF ARTS AND SCIENCES

H 101 HISTORY OF WESTERN CIVILIZATION I Cr. 3-0 (3-0) (0-0)

A survey of the growth of European civilization from the Greco-Roman Era to the eve of the Reformation. Attention is given to economic, social, intellectual, and political developments during these centuries.

H 102 HISTORY OF WESTERN CIVILIZATION II Cr. 0-3 (0-0) (3-0)

A continuation of the study of European History from the Reformation Era to the present. Emphasis is given to the background of many of the contemporary problems of this century.

Prerequisite: H 101

H 201, 202 THE RENAISSANCE AND THE REFORMATION Cr. 3-3 (3-0) (3-0)

The first term includes treatment of political, economic, and cultural developments in Europe from A.D. 1300 to 1500 with special emphasis on Italy. The contributions of the great individuals in all these fields will be placed in the framework of

the commercial revolution which preceded and helped to br about great political and cultural change.

The second term includes a discussion of the political conditi obtaining in Europe before the outbreak of the Reformation; religious changes of the Reformation with considerable biograp cal data on the reformers, Luther, Calvin, and Zwingli notably; a the multitudinous effects of the Reformation on the Contin and in England. The temporal boundaries of the course are proximately 1500 to 1600 A.D.

H 241 AMERICAN COLONIAL HISTORY Cr. 3-0 (3-0) (0

The origin and the economic, social, cultural, and political velopment of the American colonies until the close of the Ang French struggle for empire and the beginning of the Revolution crisis.

H 251 JEFFERSON'S IDEAS IN AMERICAN HISTORY
Cr. 3-0 (3-0) (0

Jefferson's ideas and their use and modification by succeed generations of Americans from his death to the present.

H 301, 302 HISTORY OF THE UNITED STATES
Cr. 3-3 (3-0) (3

A study and appraisal of the political, social, economic, and dip matic developments and movements in American history from American revolution to the present day. Continuity as well change in American domestic and foreign policy will be e phasized. Wherever possible, an effort will be made to pres various interpretations of the more significant developments a movements, and the role of individuals in shaping their char ter and directing their course. History 301 will cover the per through the Civil War, and History 302 will cover the per since 1865.

Prerequisite: H 301

H 311 ECONOMIC HISTORY OF THE UNITED STATES
Cr. 3-0 (3-0) (0

A study of the growth of the American economy from the Colon Period to the present. Stress is given to the development business organizations, and the evolution of a predominantly a cultural economy into a highly complex industrial system.

Prerequisite: ECO 101

H 312 THE AMERICAN REVOLUTION AND THE FOUNDING OF THE REPUBLIC, 1763 - 1789

Cr. 0-3 (0-0) (3-0)

The era of the American Revolution: Consciousness of nationality, the War for Independence, government under the Confederation, and the making of the Constitution of the United States.

Prerequisite: H 241.

H 321 AMERICAN DIPLOMATIC HISTORY I

Cr. 3-0 (3-0) (0-0)

This course considers the foreign policy and diplomacy of the United States during that span of time (1776-1898) when America was not considered by Europe or itself a great power. Emphasis will be placed upon various concepts of national interest which motivated particular foreign policies, the role of certain policy makers, and American relations with Great Britain as an essential key to the understanding of the entire fabric of American policy.

H 322 AMERICAN DIPLOMATIC HISTORY II—1898—Present

Cr. 0-3 (0-0) (3-0)

This course studies the development of American foreign policies in terms of specific American reactions to international events and situations. The course will demonstrate the phases of the American response to its recognized position as a ranking world power from the Spanish-American War.

H 341, 342 INTELLECTUAL AND SOCIAL HISTORY OF THE UNITED STATES Cr. 3-3 (3-0) (3-0)

A study of the major currents of thought — religious, social, and political — which have had an impact upon the development of American institutions, values, and "tastes," as well as upon the shaping of social and cultural movements of reform. The first semester covers from the Colonial period to the Civil war and the second from the Civil War to the present.

H 352 EUROPE SINCE 1815 Cr. 0-3 (0-0) (3-0)

An analysis of the political, social, and intellectual developments, which have most affected the major Powers of Europe, during the period from the defeat of Napoleon until the rise of Hitler. Special research projects will focus the students' attention on major topics of importance during this era.

H 432 TERRITORIAL EXPANSION OF THE UNITED STATE
Cr. 0-3 (0-0) (

A comprehensive study of the economic, political and social
tors involved in the westward movement of the American pe
from the French and Indian War until the turn of the twen
century.

Mathematics

COLLEGE OF ARTS AND SCIENCES

MA 101 ELEMENTS OF COLLEGE MATHEMATICS
Cr. 3-0 (3-0) (

MA 101, 102 is a terminal course for students whose curricu
calls for one year of mathematics. The first semester covers n
ber systems, algebra, symbolic logic and trigonometry.

MA 102 ELEMENTS OF COLLEGE MATHEMATICS
Cr. 0-3 (0-0) (

Analytic geometry and an introduction to calculus.
Prerequisite: MA 101

MA 103, 104 FINITE MATHEMATICS Cr. 3-3 (3-0) (3-0)
An elementary course covering symbolic logic, finite sets, p
ability, vectors and matrices, and the theory of games.
course may be taken in place of MA 101, 102 to meet the
year mathematics requirement.

MA 111 ANALYTIC GEOMETRY AND CALCULUS I
Cr. 4-0 (4-0) (

The straight line, coni-sections, vectors, differentiation and
tegration of algebraic and transcendental functions. Require
all first year engineering, physics, chemistry, and mathem
majors.

MA 112 ANALYTIC GEOMETRY AND CALCULUS II
Continuation of MA 111 Cr. 0-4 (0-0) (

Differentiation and integration of logarithmic and exponential f
tions, theory of limits, and continuity, formal methods of inte
tion, improper integrals, hyperbolic functions, parametric e

tions, and polar coordinates. Required of all first year engineering, physics, chemistry and mathematics majors.

Prerequisite: MA 111

MA 211 ANALYTIC GEOMETRY AND CALCULUS III
Cr. 4-0 (4-0) (0-0)

Continuation of MA 112, Solid analytic geometry, partial differentiation, multiple integration and infinite series. Required of all second year engineers, physics, chemistry, and mathematics majors.

Prerequisite: MA 112

MA 212 DIFFERENTIAL EQUATIONS I Cr. 0-3 (0-0) (3-0)

Ordinary differential equations of the first order, linear differential equations of the nth order, some nonlinear second order equations, series solutions and Laplace transforms. Required of all second year engineering, physics, chemistry, and mathematics majors.

Prerequisite: MA 211

MA 221 LINEAR ALGEBRA Cr. 3-0 (3-0) (0-0)

Vectors, linear transformations, matrices and determinants. Required of all second year mathematics majors.

Prerequisite: MA 112

MA 222 INTRODUCTION TO MODERN ALGEBRA
Cr. 0-3 (0-0) (3-0)

Integral domains, fields, rings, and groups. Required of all second year majors in mathematics.

Prerequisite: MA 221.

MA 231 ELEMENTARY STATISTICS Cr. 3-0 (3-0) (0-0)

Collection and presentation of data. Frequency distributions and measures of central tendency. Introduction to probability. Estimation. Statistical inference and sampling.

Prerequisite: MA 102

MA 232 INTRODUCTION TO DECISION THEORY
Cr. 0-3 (0-0) (3-0)

Continued application of statistical procedures. Regression and correlation analyses. Statistical problems from decision making point of view, using loss functions, risks, and expectations.

Prerequisite: MA 231

MA 311, 312 ADVANCED CALCULUS Cr. 3-3 (3-0) (3-0)

A rigorous analysis of the concepts of limits, continuity, the rivative, the Riemann integral, series, uniform conveyance, fu tions of several variables, Fourier series, improper integrals, and surface integrals.

MA 321 ADVANCED ENGINEERING MATHEMATICS Cr. 3-0 (3-0) (0)

Series solutions of differential equations, vector analysis, solut of partial differential equations of mathematical physics and troduction to complex variables. Required of all third year ma in electrical engineering.

Prerequisite: MA 212

MA 341 DIFFERENTIAL EQUATIONS II Cr. 3-0 (3-0) (0-0

Numerical solutions of differential equations, partial differe equations, and boundary-value problems.

Prerequisite: MA 212

MA 342 VECTOR ANALYSIS Cr. 0-3 (0-0) (3-0)

The algebra and calculus of vectors and curvilinear coordinat

Prerequisite: MA 212

MA 351 NUMERICAL ANALYSIS Cr. 3-0 (3-0) (0-0)

Finite differences, polynomial and transcendental equations, n erical integrations and the least square method.

Prerequisite: MA 212

MA 361 THEORY OF NUMBERS Cr. 3-0 (3-0) (0-0)

Prime numbers, congruences, quadratic residues, Diophar equations and other topics.

Prerequisite: MA 211

MA 362 THEORY OF EQUATIONS Cr. 0-3 (0-0) (3-0)

Complex numbers, fundamental theorems, cubic and quartic e tions, approximation methods, determinants and matrices, symmetric functions.

Prerequisite: MA 211

MA 401 HISTORY OF MATHEMATICS Cr. 3-0 (3-0) (0-0)

A chronological survey of the development of mathematics thr the 19th century.

Prerequisite: MA 211

MA 411 FUNCTIONS OF REAL VARIABLES
Cr. 3-0 (3-0) (0-0)
Real numbers, abstract spaces, point sets, measure theory, and Lebesgue integration.
Prerequisite: MA 312

MA 421 FUNCTIONS OF A COMPLEX VARIABLE
Cr. 3-0 (0-0) (3-0)
Analytic functions, differentiation, integration, conformal mapping, calculus of residues and infinite series.
Prerequisite: MA 312

MA 422 LINEAR PROGRAMMING Cr. 0-3 (3-0) (0-0)
Convex sets, simplex method of solution of linear programming problems, with application to mixture problems, transportation problems, optimum allocation, and Leontief Models. Introduction to the theory of games.
Prerequisites: MA 221 or consent of instructor

MA 441, 442 MODERN ALGEBRA Cr. 3-3 (3-0) (3-0)
Theory of groups, rings, fields, vector spaces, and linear transformations.
Prerequisite: MA 222

MA 451 DIFFERENTIAL GEOMETRY Cr. 3-0 (3-0) (0-0)
The differential geometry of curves and surfaces.
Prerequisite: MA 212

MA 452 INTRODUCTION TO HIGHER GEOMETRY
Cr. 0-3 (0-0) (3-0)
Topics from projective geometry and non-Euclidean geometry.
Prerequisite: MA 312

MA 461 ELEMENTARY TOPOLOGY Cr. 3-0 (3-0) (0-0)
An introduction to Point-set Topology and algebraic Topology.
Prerequisite: MA 312

MA 471 PROBABILITY Cr. 3-0 (3-0) (0-0)
Combinatorial analysis, algebra of expectations, principle discrete and continuous probability distributions, transformation of variables.

MA 472 MATHEMATICAL STATISTICS Cr. 0-3 (0-0) (3-0)

Theory of estimation and hypothesis testing, including Neymar Pearson Lemma. Cramer-Rao Inequality, and complete and su ficient statistics. Non-parametric tests, correlation, and introduc tion to decision theory.

MA 481 ADVANCED PROBABILITY Cr. 3-0 (3-0) (0-0)

Continuation of topics from MA 471, with inclusion of Boye Theorem, probability generating functions, birth and death pr cesses, and gamblers' ruin.

Prerequisite: MA 471

Modern Languages

COLLEGE OF ARTS AND SCIENCES

FR 101, 102 FRENCH I, II Cr. 3-3 (3-0) (3-0)

This is an elementary course utilizing college level materia oriented to establish the fundamentals of the language in term of combined audiolingual and traditional objective.

Prerequisite: FR 101 or its equivalent for FR II

FR 201, 202 FRENCH III, IV Cr. 3-3 (3-0) (3-0)

This is an intermediate course, organized to broaden the maste of fundamentals of the French language, in terms of the aura oral objective. Secondary objectives include reading ability, a co tinuation of grammar, written control of the materials studied, ar an expanding awareness of the French culture.

Prerequisite: FR 102

GER 101, 102 GERMAN I, II Cr. 3-3 (3-0) (3-0)

An elementary course in the German language. Covers gramma composition, and reading of German prose.

Prerequisite: GER 101 or its equivalent for GER II

GER 201, 202 GERMAN III, IV Cr. 3-3 (3-0) (3-0)

This course provides extensive reading in German, especially major literary figures, with an aim to increasing the student vocabulary and speed, and improving his comprehension. Tim will also be devoted to composition in German and to the revie of grammar.

Prerequisite: GER 101 or its equivalent and GER 102

RUS 101, 102 RUSSIAN I, II Cr. 3-3 (3-0) (3-0)

A study of the fundamentals of Russian grammar together with drills in pronunciation and reading. Conversation in Russian is introduced from the beginning. Various outside readings in Russian will introduce the student to Russian and Soviet culture.

RUS 201, 202 RUSSIAN III, IV Cr. 3-3 (3-0) (3-0)

This course will include a review of basic grammar and a study of more advanced syntax. Readings will serve as the basis for continued work in conversation and composition and for the study of Russian and Soviet culture. Conducted in Russian.

Prerequisite: Russian 102 or permission of the instructor.

SPN 101, 102 SPANISH I, II Cr. 3-3 (3-0) (3-0)

In a measure self-instructional, the work of these two semesters seeks to develop spoken proficiency in the language by relying upon linguistic principles of phonemic and morphological analysis inherent in the materials utilized. A second objective involves the training of the student in reading ability and written control within a context of the Spanish culture.

SPN 201, 202 SPANISH III, IV Cr. 3-3 (3-0) (3-0)

This is an intermediate course planned to broaden the student's mastery of the Spanish language in terms of audiolingual proficiency. Secondary objectives include reading ability, the continuation of grammar, and written control of the materials studied within a developing context of Spanish culture.

Prerequisite: SPN 102

POR 101, 102 PORTUGUESE I, II Cr. 3-3 (3-0) (3-0)

A study of the principal elements of Portuguese grammar together will drill in pronunciation and in reading. Conversation in Portuguese is introduced from the beginning.

POR 201, 202 PORTUGUESE III, IV Cr. 3-3 (3-0) (3-0)

This course will include a review of the essentials of grammar, exercises in composition, readings of representative modern Brazilian and Portuguese prose, oral practice and the correct use of idiomatic expressions.

The course will be conducted as far as possible in Portuguese.

Prerequisite: POR 101, 102 or a sufficient command of the language to satisfy the instructor.

Music

COLLEGE OF FINE AND APPLIED ARTS

MUS 101, 102 INTRODUCTION TO MUSIC Cr. 3-3 (3-0) (3-0)

This course is designed primarily for the general student who ha had no previous formal musical experience. Its purpose through out is to stimulate and develop the student's interest and intelliger understanding of music through analytical listening and the stud of the elements and chief musical forms, styles, and historical pe iods of music history.

This course will also show how the various arts responded to th same philosophical, socio-cultural conditions, and how each a is related to the others in the pattern of cultural history. Readin and listening are assigned, and attendance at concerts recom mended.

MUS 201 ROMANTIC MUSIC Cr. 3-0 (3-0) (0-0)

A study of the Romantic innovations and of composers and the representative styles from Ludwig van Beethoven to Richar Strauss.

MUS 202 TWENTIETH CENTURY MUSIC Cr. 0-3 (0-0) (3-0)

A study of the trends in twentieth century music, encompassin analysis of representative works from the period, and their rel tionships to the cultural-political existing age.

MUS 211 CHORUS Cr. 0-1 (0-3) (0-3)

Rehearsal twice a week, each session lasting one and a ha hours. Attendance at chorus rehearsals mandatory. Besides pr paration for concerts, part of each rehearsal will be spent on voc problems and techniques.

Philosophy

COLLEGE OF ARTS AND SCIENCES

PH 201, 202 PROBLEMS OF PHILOSOPHY Cr. 3-3 (3-0) (3-0)

This is an introductory course in philosophy as the persiste and methodical attempt to think clearly about basic problems human life. These problems include an investigation and evalu tion of ways of knowing, studies in values, and determination possible general accounts of man and the universe, in inter-relatio

PH 211 LOGIC Cr. 3-0 (3-0) (0-0)

For this course logic is broadly conceived as a study of the weight of evidence in all fields. The foundation of valid thinking in formal logic is established through class and propositional logic. The nature of meaning and of truth, and scientific method, are topics of importance. Exercises in the recognition of fallacies are included.

PH 482 PHILOSOPHY OF SCIENCE Cr. 0-3 (0-0) (3-0)

This course is a critical analysis of science and its methods, of its justification and of its limitation. What scientists actually do, the reasons therefor, and the results thereof, are central.

PH 561, 562 PHILOSOPHY OF ART Cr. 3-3 (3-0) (3-0)

This is essentially a study of aesthetic experience and aesthetic judgment. It includes such problems as are related to the arts, to fine art, to productivity, and to criticism.

Physics

COLLEGE OF ARTS AND SCIENCES

PHY 111 PHYSICS I Cr. 3-0 (4-0) (0-0)

Particle Mechanics including principles of conservation of momentum, energy and angular momentum. Oscillations, planetary motion, inertial forces. Required of all first year engineering, physics, mathematics and chemistry majors. PHY 121 and MA 111 to be taken concurrently.

PHY 112 PHYSICS II Cr. 0-3 (0-0) (4-0)

Principles of rigid body motion. Properties of matter including elementary hydrodynamics, Thermodynamics, Kinetic Theory of gases, solids and liquids. Waves phenomena. Required of all first year engineering, physics, mathematics and chemistry majors. PHY 122 and MA 112 to be taken concurrently.

Prerequisite: MA 111 and PHY 111

PHY 121, 122 PHYSICS LABORATORY Cr. ½-½ (0-2) (0-2)

A laboratory course which accompanies PHY 111, 112. One 2-hour laboratory biweekly. Required of all first year engineering, physics, mathematics, and chemistry majors.

PHY 201, 202 GENERAL PHYSICS Cr. 3-3 (3-0) (3-0)

A survey course which emphasizes the physical principles c mechanics, heat, light, sound, and electricity. Required of a second year biology and textile technology majors.

PHY 203, 204 PHYSICS LABORATORY Cr. 1-1 (0-2) (0-2)

A laboratory course which accompanies PHY 201, 202. One 2 hour laboratory weekly.

PHY 211 PHYSICS III Cr. 3-0 (4-0) (0-0)

Fundamental laws of electricity and magnetism. Static and dy namic properties of the electromagnetic field, interaction of th field with charges and currents, dielectric and magnetic medi Maxwell's equations. Vector calculus is used extensively. Re quired of all second year engineering, physics, mathematics an chemistry majors. PHY 221 to be taken concurrently.

Prerequisite: PHY 112, MA 112

PHY 212 PHYSICS IV Cr. 0-3 (0-0) (4-0)

Classical electromagnetic theory of light and its interaction wit matter, Huygen's principle, physical optics. Introduction to atom and nuclear physics. Required of all second year engineerin physics, mathematics, and chemistry majors. Phy 222 to b taken concurrently.

Prerequisite: PHY 211, MA 211.

PHY 221, 222 PHYSICS LABORATORY Cr. ½-½ (0-2) (0-2)

A laboratory course which accompanies PHY 211, 212. On 2-hour laboratory biweekly. Required of all second year engi eering, physics, mathematics and chemistry majors.

PHY 311 INTERMEDIATE MECHANICS Cr. 3-0 (3-0) (0-0)

Fundamental ideas of classical mechanics, moving coordinate sy tems, Lagrange's equations, Hamiltonian formalism, rigid bod dynamics, small oscillations, normal modes. Phy 343 to be take concurrently.

Prerequisite: PHY 212, MA 212.

PHY 312 INTERMEDIATE ELECTRICITY AND MAGNETISM Cr. 0-3 (0-0) (3-

The theory of electric and magnetic fields in vacuo and in solid Special emphasis is placed on the application of Maxwell's equ

tions to the propagation of electromagnetic waves in free space, material media and in wave guides. Required of all third-year physics majors.

Prerequisite: PHY 212, MA 212.

PHY 322 ADVANCED PHYSICS LABORATORY I
Cr. 0-3 (0-0) (0-4)

A laboratory course designed to acquaint the student with current experimental techniques.

PHY 331 MODERN PHYSICS I Cr. 3-0 (3-0) (0-0)

Survey of the foundations of modern physics including special relativity, photons and matter waves, structure of the hydrogen atom, and many-electron atoms and the periodic table.

PHY 332 MODERN PHYSICS II Cr. 0-3 (0-0) (3-0)

Continuation of PHY 331. Further study of the phenomena of atomic and nuclear physics using methods of elementary quantum mechanics; cosmic rays; elementary particles; quantum statistics, etc.

Prerequisite: PHY 331.

PHY 343 MATHEMATICAL PHYSICS I Cr. 3-0 (3-0) (0-0)

Selected topics in vector calculus, linear algebra, ordinary and partial differential equations, with special applications to physics.
Prerequisite: MA 212 and PHY 212.

PHY 344 MATHEMATICAL PHYSICS II Cr. 0-3 (0-0) (3-0)

Continuation of PHY 343. The ordinary and partial differential equations of theoretical physics, with applications to the mechanics of discrete and continuous systems and to electromagnetic fields.

Prerequisite: PHY 311, 312 and 343.

PHY 351 PHYSICAL ELECTRONICS Cr. 3-0 (3-0) (0-0)

The theory of electronic circuits emphasizing applications in the modern research techniques of measurement, pulse counting and automatic control. Feedback amplifiers, transistors, photomultipliers, differentiating and integrating circuits, etc.

PHY 415, 416 THERMODYNAMICS AND STATISTICAL MECHANICS
Cr. 3-3 (3-0) (3-0)

Formulation of the laws of thermodynamics and kinetic theory and application to physical problems; entropy and probability; introduction to Boltzmann, Bose-Einstein and Fermi-Dirac statistics and their application to physical problems.

PHY 421 ADVANCED PHYSICS LABORATORY II

Cr. 3-0 (0-4) (0-

Continuation of PHY 322. A laboratory course designed to a quaint the student with the techniques of modern experiment physics.

Prerequisite: PHY 322.

PHY 442 INTRODUCTION TO SOLID STATE PHYSICS

Cr. 3-0 (3-0) (0-

The thermal and elastic properties of solids. Electric and ma netic properties of solids including the properties of dielectri ferromagnetism and superconductivity. Band theory of meta properties of semiconductors, and imperfections in crystals. Ei phasis placed on descriptive aspects of topics using only eleme tary quantum mechanics.

PHY 443 PHYSICAL OPTICS Cr. 0-3 (0-0) (3-0)

Reflection, refraction, interference, diffraction and polarizati of light. Dispersion, absorption and scattering. Optical prop ties of anisotropic media.

PHY 451 INTRODUCTION TO QUANTUM MECHANICS

Cr. 3-0 (3-0) (0-

The elementary formalism of quantum mechanics and the theo of measurement; solutions of the Schroedinger equation; angu momentum; the hydrogen atom and its fine structure; introdu tion to perturbation methods.

PHY 461 ATOMIC PHYSICS Cr. 3-0 (3-0) (0-0)

Atomic phenomena. Rutherford's model of the atom. Boh model. Quantication. Electron spin and magnetic mome Stern-Gerlach experiment. Electron configurations in aton vector model, Pauli exclusion principle, atomic and molecu spectra. Spin-orbit interaction, fine structure, anomalous Zeem effect. Atomic collisions, ionization; luminescence. Stimulat emission: lasers, masers.

PHY 462 NUCLEAR PHYSICS Cr. 0-3 (0-0) (3-0)

Properties of nuclei and their measurement. Natural Rad activity nuclear reactions and energy levels. Nuclear models: sh model, optical model, liquid drop model. Nuclear fission.

PHY 490 SPECIAL PROJECT IN PHYSICS Cr. 0-3

Intensive individual work on an experimental or theoretical problem in physics under the guidance of a staff member. The special project is to be selected at the beginning of the senior year. Credit will be assigned in the second semester.

Political Science

COLLEGE OF ARTS AND SCIENCES

PS 101 AMERICAN GOVERNMENT Cr. 3-0 (3-0) (0-0)

Structure and constitutional foundation of American government. Political parties and pressure groups, three branches of government, functions of government. Comparison of American system with other governmental systems. Introduces students to analytical method in political science.

PS 102 COMPARATIVE GOVERNMENT Cr. 0-3 (0-0) (3-0)

Study of political processes, ideologies, constitutional systems and governmental structure of foreign countries including Great Britain, France, Italy, Soviet Union and selected underdeveloped nations. Comparison with American system of government. Stress laid on use of analytical method.

PS 201 INTERNATIONAL RELATIONS Cr. 3-0 (3-0) (0-0)

Consideration of the principle elements shaping the nation-state system, and the political and legal principles underlying that system. Attention directed to concepts such as power, the national interest, nationalism, the balance of power, international organization. Due consideration given to the arenas of great power conflict and the emergent nations. The framework is both institutional and theoretical.

Prerequisite: PS 101 or 102 and upperclass standing.

PS 202 FOREIGN POLICY OF THE UNITED STATES Cr. (0-3) (0-0) (3-0)

Constitutional principles, theoretical postulates, institutional and economic factors in the formulation of foreign policy. Contemporary diplomatic action in regard to specified nations, blocs of countries, and international organizations. Relationship of economic assistance and military action to foreign policy.

Prerequisite: P. S. 101 or 102, and upperclass standing.

PS 203 STATE GOVERNMENT Cr. 3-0 (3-0) (0-0)

Course will stress comparative method and use of first hand search techniques. Comparison of Massachusetts with ot states, with federal government, and with middle-level governm in foreign countries. Historical heritage: constitutionalism, p alistic structure, spoils system, and civil service; newer devel ments such as systematic budgeting and revenue estimation, a mation, coordination by central staff committees.

Prerequisite: PS 101 and upperclass standing.

PS 301 AMERICAN POLITICAL THOUGHT

Cr. 3-0 (3-0) ((

Development of American political thought from Colonial pe to present day. Among points of stress: Jefferson, Feder Papers, Calhoun, Thoreau, Sumner, Veblen, selected Supr Court decisions. Effect of newer scientific thinking in sociol psychology, management on American political thought.

Prerequisite: P. S. 101 or 102, and upperclass standing.

PS 302 MODERN POLITICAL THOUGHT

Cr. 0-3 (0-0) (

Complements P. S. 301, stressing contribution of European other foreign leaders. Development of democratic thought s 18th Century, capitalism, socialism, communism, fascism, a chism, and religiously oriented philosophies. Influence of lite writers, scientific thinkers.

Prerequisite: P. S. 101 or 102, and upperclass standing.

PS 303 POLITICAL PARTIES AND PRESSURE GROUPS

Cr. 3-0 (3-0) (

Role of political parties, pressure groups, public opinion propaganda in the political and governmental process. So logical, ethnic, and economic influences; organization, lea ship and action programs of American political parties; the party system, elections, political patronage.

Prerequisite: P. S. 101 and upperclass standing.

PS 305 INTERNATIONAL ORGANIZATION

Cr. 3-0 (3-0) (

Theory and practice of international organization, historical b ground of modern organizations. United Nations, Pan-Amer Union, European Common Market, NATO, Organization

African unity, international courts. Includes study of pressure groups and competing value systems within international bodies.
Prerequisite: P. S. 101 or 102 and upperclassmen standing.

PS 401, 402 POLITICAL SCIENCE RESEARCH SEMINAR
Cr. (3-3) (3-0) (3-0)

Two semester course designed for Political Science majors. Students from other disciplines who have taken one full year (two semesters) of political science may be admitted with the consent of the Instructor.

Training in report writing: clarity of expression, organization, documentation. Research methodology: use of primary sources, including statistical materials, alternative hypotheses, scientific criterea, formulation of conclusions. Members of seminar are to present research papers on an every-other-week basis on a common subject to be announced by the Instructor.

Prerequisite: Junior or senior standing.

Psychology

COLLEGE OF ARTS AND SCIENCES

PSY 101 GENERAL PSYCHOLOGY Cr. 3-0 (3-0) (0-0)

This course is designed to introduce the student to psychology through a study of growth and development, motivation, frustration, emotion and feeling, learning, attention and perception, intelligence, thinking, and personality.

PSY 202 SOCIAL-PSYCHOLOGY Cr. 0-3 (0-0) (3-0)

The relationship between group membership and individual behavior. Special attention will be given to concepts of self-identity, roles, role conflicts, consciousness, the reification of consciousness, symbolic interaction, and creativity. The theories of Meads, Piaget, Cooley, Strauss, Lukacs Goffman, Kenneth Burke, and Erik Erickson will be examined.

Prerequisite: Junior standing.

PSY 311 PSYCHOLOGY OF ADJUSTMENT Cr. 3-0 (3-0) (0-0)

A study of the dynamics of human adjustment. Attention will be directed toward an examination of motivation, frustration, con-

flict, types of adjustment, anxiety, the role of learning in adj- ment, psychotherapy and mental hygiene.

Prerequisite: Junior standing.

PSY 412 INDUSTRIAL PSYCHOLOGY Cr. 0-3 (0-0) (3-0)

This course deals with the principles of psychology as applied business and industry. Topics to be studied are: individual dif- ences, morale, job satisfaction, supervision, communication, dustrial conflict, accidents, interviewing, and psychological tes in business and industry.

Prerequisite: Junior standing.

Sociology

COLLEGE OF ARTS AND SCIENCES

SOC 101 INTRODUCTION TO SOCIOLOGY Cr. 3-0 (3-0) (0

A history of sociology and the major divisions, principles theories concerning society. Special consideration is given basic empirical studies of the past and current research.

SOC 102 SOCIAL PROBLEMS Cr. 0-3 (0-0) (3-0)

A survey of the various social problems found in different tures. The changing nature of social problems over time place. A variety of theoretical explanations for social probl arising will be examined. Special emphasis will be placed crime, juvenile delinquency, mental illness, race minority relati and addictions.

Prerequisit: SOC 101

SOC 201 MASS SOCIETY AND CULTURE Cr. 3-0 (3-0) (0-(

The history, development, and theory of mass society and ture. The basic controversies concerning mass society as flected in the writings of Ortega y Gasset, Rosenbarg, Luk Griff and others.

Prerequisite: SOC 101

SOC 202 DEMOGRAPHY AND HUMAN ECOLOGY Cr. 0-3 (0-0) (

The study of population as a problem. The problem of o and-under population, recent developments in genetics and t influence in demographic problems. Also the study of the sp

distribution of man. The theories concerning population of Malthus, Carr-Suanders, Sauvy, Clark and Notestein will be studied.

Prerequisite: SOC 101

OC 301 THE SOCIOLOGY OF WORK Cr. 3-0 (3-0) (0-0)

The study of the social organization of work in contemporary societies. Particular attention will be paid to occupations, professions, careers, work roles, identity, role conflicts, and the social organization of the factory.

Prerequisite: SOC 101

OC 302 THE SOCIOLOGY OF ART Cr. 0-3 (0-0) (3-0)

The relationship between society and art and artists. Various problems will be taken up concerning the recruitment and careers of artists and the effects that these have had on thir artistic work.
Prerquisite: SOC 101, PSY 101 or History of Art.

OC 401 RESEARCH METHODS IN SOCIOLOGY Cr. 3-0 (3-0) (0-0)

The philosophy of modern research methods in sociology will be explained and related to various theoretical orientations. Specific techniques will be described and evaluated. Among these will be the historical, statistical, survey, case-history and philosophical techniques.

Prerequisites: SOC 101 and one other sociology course.

Business Administration

COLLEGE OF BUSINESS AND INDUSTRY

BA 101 BASIC ACCOUNTING Cr. 3-0 (3-2) (0-0)

A study of accounting theory as applied to accounts by the analysis of business transactions and entries in books of original entry; the ledger and trial balance; preparation of financial statements; the use of accounting as a tool of management.

BA 102 BASIC ACCOUNTING Cr. 0-3 (0-0) (3-2)

Continued application of accounting theory applied to accounts incident to the development of partnership and corporation accounting methods and procedures. Analysis of statements. State-

ments of application of funds. Consideration of the effects automation in accounting procedures.

Prerequisite: BA 101

BA 201 INTERMEDIATE ACCOUNTING Cr. 3-0 (3-0) (0-0)

Review of fundamental procedures. A detailed analysis of pr and loss accounts and the effect on the balance sheet equation well as the interpretation and analysis of statements.

Prerequisite: BA 102

BA 202 ADVANCED ACCOUNTING Cr. 0-3 (0-0) (3-0)

A detailed study of procedures in partnership and corporat accounting. Installment and consignment sales, consolidations a fiduciary and budgetary accounting.

Prerequisite: BA 201

BA 221 THEORY OF ADMINISTRATION Cr. 3-0 (3-0) (0

This course attempts to give the student a deeper insight i the need for understanding human characteristics as well as te nological and economic concepts in building a sound managem policy.

BA 222 MANAGERIAL ECONOMICS Cr. 0-3 (0-0) (3-0)

This course introduces the student to the use of the tools f economic analysis in formulating and solving management pr lems and effectively integrates economic analysis and the m agement viewpoint.

BA 301 COST ACCOUNTING Cr. 3-0 (3-0) (0-0)

A study of process and specific order cost systems; material v uation, accounting for labor costs, distribution of costs to partments, standard costs and variances.

Prerequisite: BA 202

BA 302 COST ACCOUNTING Cr. 0-3 (0-0) (3-0)

Continued application of the principles of production costs; alysis of budgets, forecasts, and other control procedures to as management in manufacturing, distribution and service operatio

Prerequisite: BA 301

BA 311 LEGAL FRAMEWORK OF BUSINESS

Cr. 3-0 (3-0) (0-0)

This course seeks to familiarize the student with the fact that all business must be conducted within the framework of the law, that such a legal environment forms the basis for rules of conduct among businessmen, and that a broad comprehension of the law is essential in setting business policy.

BA 312 BUSINESS FINANCE Cr. 0-3 (0-0) (3-0)

A study is made of the basic business and investment problems necessary for the successful operation of a business enterprise.

Prerequisite: BA 102

BA 321 PRINCIPLES OF MARKETING Cr. 3-0 (3-0) (0-0)

Fundamental functions of marketing; distribution of goods and services; channels of distribution; consumer motivation; wholesale and retail structures; price policies; promotion of products; competition; types of marketing policies that affect the marketing manager.

BA 322 MARKETING MANAGEMENT Cr. 0-3 (0-0) (3-0)

This course is based upon the management point of view, being decision-oriented and analytical. It sets forth a definite way of surveying current developments in marketing practice, with the advantage of allowing the student freedom in his choice of executive action.

Prerequisite: BA 321

BA 331 ADVERTISING AND SELLING Cr. 3-0 (3-0) (0-0)

A study of the principal forms of advertising. Practice in the planning of advertising campaigns. Integration of advertising and selling principles. Methods of selling and their application to specific cases, with emphasis on sales management at wholesale and retail levels.

BA 332 ADVERTISING AND SELLING Cr. 0-3 (0-0) (3-0)

Continued application of the principles of advertising and selling. Emphasis on decision-making under changing conditions and in the presence of many variables.

Prerequisite: BA 331

BA 341 PRODUCTION MANAGEMENT Cr. 3-0 (3-0) (0-0)

This course deals with the application of analytical techniques problems of allocating resources within the business enterprise. seeks to familiarize the student with the quantitative disciplin of mathematics, statistics and accounting which are most relev for the analysis and solution of production problems.

Prerequisite: BA 212; MA 102; BA 102

BA 342 TIME AND MOTION STUDY Cr. 0-3 (0-0) (3-0)

A study of the scientific approaches to eliminate wasted effo Principles of the uses of graphic charts, sample sizes, work f tors, allowances and methods of establishing indirect labor sta ards are determined.

Prerequisites: BA 212

BA 351 REAL ESTATE Cr. 3-0 (3-0) (0-0)

A study of the forms and types of properties and ownership, praisal procedures, and financial arrangements.

BA 352 BUSINESS CYCLES AND FORECASTING Cr. 0-3 (0-0) (3

A study of the dynamic forces on economic activity; national come accounting and analysis; economic indicators and measur forecasting for the economy of the firm; and problems of stabil and growth.

Prerequisite: BA 222

BA 361 INDUSTRIAL ACCOUNTING Cr. 3-0 (3-0) (0-0)

A course for Industrial Engineering students only. The cou consists of the basic foundations in accounting principles a procedures.

BA 401 AUDITING Cr. 3-0 (3-0) (0-0)

Procedures and practices in auditing programs. Duties and sponsibilities of auditors. Preparation of audit working papers

Prerequisite: BA 202

BA 402 AUDITING Cr. 0-3 (0-0) (3-0)

Continued application of theory in conducting and completing audit. Preparation of working papers, financial statements, a audit reports.

Prerequisite: BA 401

BA 411 TAXATION Cr. 3-0 (3-0) (0-0)

Basic tax problems affecting the individual and the business enterprise. A study is made of individual income taxes, sales and excise taxes as well as real and personal property taxes.

BA 412 TAXATION Cr. 0-3 (0-0) (3-0)

Continued application of the principles of taxation. A study of the Internal Revenue Code as it affects individuals, partnerships, and corporations.

Prerequisite: BA 411

BA 421 LABOR MANAGEMENT Cr. 3-0 (3-0) (0-0)

This is a course dealing with the historical background and present status of labor organizations. It emphasizes the many labor-management problems that are evident today and aims to help the student understand the various techniques employed in collective bargaining procedures.

BA 422 PERSONNEL MANAGEMENT AND INDUSTRIAL RELATIONS Cr. 0-3 (0-0) (3-0)

A study of manpower management and personnel practices in effect in today's complex business enterprise.

BA 431 BUSINESS POLICY Cr. 3-0 (3-0) (0-0)

This course deals with top-management problems in business. It encompasses the basic business fields and gives the student an opportunity to develop his managerial decision-making practices and procedures.

BA 432 ADMINISTRATIVE PRACTICES Cr. 0-3 (0-0 (3-0)

A study of administrative situations and problems relating to all levels of activity within the business enterprise.

Prerequisite: BA 422; BA 431

BA 441 ELECTRONIC DATA PROCESSING Cr. 3-0 (3-0) (0-0)

Survey of the mechanization of all business procedures with emphasis on punch card machines and computers.

BA 442 ELECTRONIC DATA PROCESSING Cr. 0-3 (0-0) (3-0)

Continued application of data processing procedures. Panel wiring, programming of tabulators, reproducers, collators, sorters and interpreters.

Prerequisite: BA 441

BA 451 MARKETING RESEARCH Cr. 3-0 (3-0) (0-0)
Development of marketing research. Techniques of defining mar keting problems. Gathering and analyzing data.
Prerequisite: BA 321; BA 312

BA 452 MARKETING RESEARCH Cr. 0-3 (0-0) (3-0)
Continued application of marketing research principles. Fiel work and practice in making market surveys.

BA 461 INDUSTRIAL MANAGEMENT Cr. 3-0 (3-0) (0-0)
A study of the principles underlying manufacturing and productio problems.
Prerequisite: BA 342

BA 471 CORPORATION LAW Cr. 3-0 (3-0) (3-0)
Laws pertinent to corporations, property sales, negotiable instru ments and bankruptcy.
Prerequisite: BA 311

BA 472 INSURANCE FUNDAMENTALS Cr. 0-3 (3-0) (3-0)
Fundamental principles of insurance; life, property, casualty an suretyship.

BA 481 SEMINAR Cr. 3-0 (3-0) (3-0)
This is a conference course for students doing research or thos preparing theses related to various business fields.

Textile Chemistry

COLLEGE OF BUSINESS AND INDUSTRY

TC 302 ELEMENTARY DYEING Cr. 0-3 (0-0) (2-3)
This course consists of a study of the preparation of textile fibe for dyeing and the application of the various classes of dyestuf to textile fibers.

TC 312 CHEMISTRY OF DYESTUFFS Cr. 0-4 (0-0) (3-3)
A study of the chemistry and technology of dyes. Preparation intermediates and dyestuffs on a laboratory scale.
Prerequisite: CH 211-212

TC 322 APPLICATION OF DYES Cr. 2-0 (2-0) (0-0)

This course is designed to acquaint the student with the fundamental properties of the various classes of dyes and to acquaint him with the techniques of the application of dyestuffs to natural and synthetic fibers.

TC 323 FINISHING TECHNOLOGY Cr. 0-2 (0-0) (2-0)

A general course in fabric finishing. Emphasis is placed on garment-type fabrics including stabilization finishes, water repellency, crease resistance and mildew proofing.

TC 401 ADVANCED DYEING Cr. 3-3 (2-2) (0-0)

Studies are conducted on the application of dyestuffs to synthetic fibers and mixed fiber combinations. Color matching and experimental dyeing on pilot plant equipment are included.

Prerequisite: TC 302

TC 411 TEXTILE PRINTING Cr. 3-0 (2-3) (0-0)

This course covers methods of printing and the preparation of printing pastes. Direct, discharge and resist printing methods are included.

TC 421 CHEMICAL TECHNOLOGY OF FINISHING Cr. 3-0 (2-3) (0-0)

The application of the various classes of textile finishes to natural fibers. Attention is centered on the standard finishes used in modern practice.

Prerequisite: TC 302

TC 422 CHEMICAL TECHNOLOGY OF FINISHING Cr. 0-3 (0-0) (2-3)

The finishing of synthetic fibers and blends is studied. Finishing procedures and dye selection are included. This course is supplemented by field trips to various plants.

Prerequisite: TC 421

TC 431 INDUSTRIAL CHEMICAL ANALYSIS Cr. 3-0 (2-3) (0-0)

This course is devoted to the chemistry of products associated with the textile industry. Methods of analysis of the A. A. T. C. C. and A. S. T. M. and other specialized procedures are followed. The testing of dyestuffs and fabric blends is included.

Prerequisite: TC 302

TC 432 INDUSTRIAL CHEMICAL ANALYSIS
Cr. 0-3 (0-0) (2-3

A continuation of Chemistry TC 431. Fuels, water, lubricatin compounds, soap and industrial chemicals are analyzed.

Prerequisite: TC 431

TC 442 CHEMISTRY OF FIBERS Cr. 0-3 (0-0) (2-2)

The chemistry of natural and synthetic fibers. A study of th relationship between the chemical structure and physical pro erties of fibers.

Prerequisite: CH 212

TC 452 TEXTILE MICROBIOLOGY Cr. 0-3 (0-0) (2-4)

Fundamental techniques of microbiology. Preparation of cultu media, staining and identification, sterilization techniques. Ap plication and evaluation of bactericidal and fungicidal finishes t textile materials.

Prerequisite: TC 421

Textile Technology

COLLEGE OF BUSINESS AND INDUSTRY

TT 201–202 YARN TECHNOLOGY Cr. 3-3 (2-2) (2-2)

Technological and scientific concepts of fiber and yarn structur and modifications resulting from processing. Includes prepr cessing fiber development and preparation, methods of blendir and distribution, and principles of drafting, twisting and mechan cal controls prior to yarn formation.

TT 211–212 FABRIC TECHNOLOGY Cr. 3-3 (3-1) (3-1)

Fundamentals and principles of the mechanisms related to fabr cation of materials by the process of weaving. Basic cam syste followed by dobby mechanism and semiautomatic motions. Mate ial preparations prior to weaving are included in course conter Introduction of multi-color mechanisms.

TT 221, 222 DESIGN AND STRUCTURE Cr. 3-2 (3-2) (1-3)

A study of the fundamental principles of fabric construction ar weave formation of basic and staple fabrics. Instruction in th physical analysis and design techniques essential to the reprodu tion and creation of woven fabrics.

TT 231–232 KNIT TECHNOLOGY Cr. 2-2 (2-1) (2-1)

Fundamentals and principles of the mechanisms related to the fabrication of materials by the process of knitting. Machine and motion capabilities and applicable mathematics are studied. Analysis and creation of fabric designs and patterns are also considered.

TT 301–302 YARN TECHNOLOGY Cr. 3-3 (2-2) (2-2)

Theories, mechanics, and applications involved in the transformation of fibrous sliver into yarn structures. Studies on various systems of dimension drafting in relation to economic standards. Laboratory experiments, visual aids, and field trips are supplementary.

Prerequisite: TT 202

TT 311–312 FABRIC TECHNOLOGY Cr. 3-3 (3-1) (3-1)

A comprehensive study of more complicated mechanisms related to various types of weaving equipment. The design, applicable calculations, capabilities, timings and settings on the multiple mechanical devices are explored and studied.

Prerequisite: TT 212

TT 321–322 DESIGN AND STRUCTURE Cr. 3-3 (3-2) (3-2)

An extension of TT 221-222 into more complex fabric constructions and patterns. Includes technology related to and required for the reproduction and creation of fabrics in the areas of multiple yarn system and three dimensional characteristics and properties. Associated yarn and fabric mathematics is included.

Prerequisite: TT 222

TT 331 TEXTILE TECHNOLOGY Cr. 2-0 (2-0) (0-0)

A course for Textile Design option students covering the theory of the various procedures employed in the processing of raw materials into yarns. The natural and manufactured types of fibers are included in the course content.

TT 332 TEXTILE TECHNOLOGY Cr. 0-2 (0-0) (2-0)

A course in the theory of material fabrication, covering principally the weaving process in its variations and capabilities as related to the application of fabric design. For students enrolled in the Textile Design option.

TT 341–342 FABRIC CONSTRUCTION I Cr. 3-3 (3-0) (3-0)

Similar to TT 221-222. Composed to meet the requirement o students following the Textile Design option.

TT 351 TEXTILE MERCHANDISING AND MARKETING Cr. 3-0 (3-0) (0-0

The lectures cover case histories and general discussions of th following subjects: the marketing of textile fibers; yarns; cloth; th influence of style and fashions on textile industry products; als price policies and other problems common to the textile industry The course is based largely on the WORTH STREET RULES.

TT 352 INTRODUCTION TO STATISTICS FOR RESEARCH Cr. 0-3 (0-0) (2-2

More stress is placed upon the need for analysis of results an the determination of their significance. The difference betwee fundamental and applied research is explained. The student carrie out some form of fundamental research.

TT 401 YARN TECHNOLOGY Cr. 3-0 (2-2) (0-0)

Principles and application methods related to yarn structures c man-made fibers and blends compositions using the various sys tems of formation. Logic factors pertaining to percent content an manufacturing procedures are investigated and studied.

Prerequisite: TT 302

TT 402 APPLIED YARN TECHNOLOGY Cr. 0-3 (0-0) (0-6)

A project program involving an assigned subject of research cor sisting of the solution of a yarn processing problem through th students' use of laboratory equipment, library research an seminar discussion.

Prerequisite: TT 401 (Elective)

TT 411 FABRIC TECHNOLOGY Cr. 2-0 (1-2) (0-0)

Continued extension of study of specific weaving mechanisms an related processes. Development and reproduction of complex an elaborate type patterns including Jacquard, pile and looped te tures.

Prerequisite: TT 312

TT 421 DESIGN AND STRUCTURE Cr. 3-0 (3-2) (0-0)

The design principles and techniques are applied to the reproduction and creation of Jacquard-type fabrics. Includes the development of the pattern sketch and painted design and the transfer of same for technical application in fabric formation. A study of novelty and textured yarns is included.

Prerequisite: TT 322

TT 431 PHYSICAL TESTING Cr. 3-0 (2-3) (0-0)

A course of study in the techniques and instruments used in quantitative and qualitative determination of fiber, yarn and fabric physical properties. Emphasis will be on the theories underlying the determined properties as well as on the interpretation and evaluation of data obtained.

TT 441–442 FABRIC CONSTRUCTION II Cr. 3-3 (3-0) (3-0)

An extension of TT 341-342 into more complex fabric constructions and patterns. Includes the analysis, reproduction, and creation of multiple-yarn, three-dimensional, and Jacquard type fabrics.

Prerequisite: TT 342

TT 451 MICROSCOPY AND TESTING Cr. 3-0 (2-3) (0-0)

A course comprising elements of TT 441-462 for textile chemistry majors.

TT 452 QUALITY CONTROL Cr. 0-3 (0-0) (3-0)

A study of industrial quality control by statistical methods as applied to manufacturing processes. The methods of data analysis, inspection methods, determination of sample size, and the construction of control charts.

Prerequisite: TT 431

TT 462 MICROSCOPY Cr. 0-3 (0-0) (2-3)

An instruction in the use of the optical microscope in relation to fiber identification and structure, composition of blends, physical, chemical, and biological condition of fibers and yarns. Use of various micrometers in length, diameter, and area measurements. Recording of data by photomicrography.

TT 472 PROFESSIONAL EXPRESSION Cr. 0-3 (0-0) (3-0)

Designed to give training in effective written and oral expression with special emphasis on the technical report.

Prerequisite: Senior standing.

TT 481 PLANT ENGINEERING Cr. 3-0 (2-2) (0-0)

General consideration is given to the design of a new textile mill; multi-story vs. single-story; problems in construction; slow-burning vs. fire-proof, windowless construction; flow diagrams or layouts are made with two-dimensional, special, adhesive-backed developed film in order that the finished job may be printed in a ozalid-type machine.

TT 482 FABRIC RESEARCH DEVELOPMENT AND DESIGN Cr. 0-3 (0-0) (1-4)

This course correlates properties of textile materials, engineering principles in textile processing, and the design of fabric structures with the desired properties for a particular functional use which would relate to stress-strain, dimensional stability, and many other characteristics pertaining to the behavior of the finished product.

TT 491 TIME AND MOTION STUDY Cr. 3-0 (3-0) (0-0)

In the first part of the course the student is taught to scientifically study the motions made by an operative on his job with a view to the elimination of wasted effort. Time study, on the other hand, treats of the scientific observation and recording of the time necessary to do a piece of work.

TT 492 TEXTILE COST ACCOUNTING Cr. 0-3 (0-0) (3-0)

This course analyzes the principles and problems basic to textile costing; basic cost concepts; cost problems; materials, labor and manufacturing costs; textile fiber and supplies purchasing; spinning mill costs; weaving mill costs; finishing mill cost problems; textile marketing costs; financial statements.

Civil Engineering

COLLEGE OF ENGINEERING

CE 211, 212 SURVEYING I, II Cr. 4-3 (3-3) (0-0)

Linear and angular measurements, calculation of transverses areas and earthworks, property line and engineering surveys. Required of all second-year civil engineers.

CE 301 GEOLOGY Cr. 0-3 (0-0) (2-2)

The materials and surface features of the earth with engineering applications. Included is the study of weathering, glaciation, vulcanism, and diastrophism. Required of all third-year civil engineers.

CE 311 STRENGTH OF MATERIALS Cr. 5-0 (4-3) (0-0)

Stresses of engineering materials, beam deflections, energy methods, column design, temperature effects, riveted sections, indeterminate members and pressure vessels. Required of all third-year civil engineers.

Prerequisite: ME 231, MA 112

CE 312 STRUCTURAL THEORY Cr. 0-3 (0-0) (3-0)

Analysis of statistically determinate structures.
Required of all 4th year electrical and 3rd year industrial engineers.

Prerequisite: CE 311

CE 321 MECHANICS OF MATERIALS Cr. 3-0 (3-0) (0-0)

Simple stress, Hooke's law, combined stresses, strength and deflection of beams, columns, spring deflection and torsion members. Required of all fourth-year electrical and third-year industrial engineers.

Prerequisite: ME 231, MA 112

CE 322 SOIL MECHANICS Cr. 0-4 (0-0) (3-2)

A study of the mechanics of soil and soil water, including frost action, stress distribution, consolidation and settlement, etc. Required of all third-year civil engineers.

Prerequisites: CE 222, PHY 101 or PHY 111

CE 342 SANITARY ENGINEERING Cr. 0-3 (0-0) (3-0)

The design of water supply and sewage disposal facilities. Required of all third-year civil engineers.

Prerequisite: ME 332 must be taken simultaneously

CE 411 HIGHWAY ENGINEERING Cr. 3-0 (3-0) (0-0)

The location, construction, and maintenance of highways. Required of all fourth-year civil engineers.

Prerequisites: CE 211 and CE 322

CE 421, 422 ADVANCED STRUCTURAL THEORY I, II
Cr. 3-3 (3-0) (3-0
The analysis of statistically indeterminate structures.
Prerequisite: CE 312

CE 431, 432 STRUCTURAL DESIGN I, II Cr. 3-3 (3-0) (3-0)
Design and tension and compression members in steel, and th design of riveted, bolted and welded connections for tension, com pression, shear, and moment.
Prerequisite: CE 311

CE 441 REINFORCED CONCRETE Cr. 3-0 (3-3) (0-0)
Design of reinforced concrete beams, columns, frames, and arche
Prerequisite: CE 311

CE 442 PRESTRESSED CONCRETE Cr. 0-3 (0-0) (3-0)
Design of concrete members using prestressed reinforcement i the form of cables, rods, or bars.
Prerequisite: CE 441

CE 452 FOUNDATIONS Cr. 0-3 (0-0) (3-0)
The design of spread footings, mat foundations, pile footings, an retaining walls.
Prerequisites: CE 322 and CE 441

CE 462 HYDRAULIC STRUCTURES Cr. 0-3 (0-0) (3-0)
The study of dams, canals, weirs, harbors, port facilities, an hydroelectric power plants.
Prerequisite: ME 332

CE 472 HYDRAULICS Cr. 0-3 (0-0) (3-0)
Open channel flow, backwater and drawdown curves, water ham mer and hydraulic jump.
Prerequisite: ME 332

CE 481 WATER SUPPLY Cr. 4-0 (3-3) (0-0)
Sources of supply, distribution systems, methods of chemica and bacteriological analysis and design of treatment plants for potable water supply.
Prerequisite: CE 342

CE 482 SEWAGE DISPOSAL Cr. 0-4 (0-0) (3-3)

Analysis, treatment and disposal of domestic and industrial wastes, and the design of treatment plants.

Prerequisite: CE 481

CE 491 SANITARY BACTERIOLOGY Cr. 0-3 (0-0) (3-0)

A study of microorganisms and their effect on waste treatment systems.

Prerequisite: CE 342

Electrical Engineering

COLLEGE OF ENGINEERING

EE 201 CIRCUIT THEORY I Cr. 3-0 (3-0) (0-0)

Course includes such topics as the following: network topology; network theorems; loop currents, nodal voltages, super position; Thevenin's and Norton's theorems; maximum power transfer; duality; energy storage in electric circuits; initial conditions; introductory a.c. and poly-phase circuitry.

Prerequisite: MA 112

EE 202 CIRCUIT THEORY II Cr. 0-3 (0-0) (3-0)

Topics include Fourier Techniques, impulse response, convolution, and Laplace Transformation, pole and zero configuration and their interpretation, and matrix notation as pertains to circuit theory.

Prerequisite: EE 201

EE 252 EE LABORATORY I Cr. 0-2 (0-0) (0-6)

This laboratory course is primarily concerned with the techniques and theory of electrical measurements. Indoctrination into the correct procedures for producing a short and formal laboratory written report is an essential part of this laboratory.

EE 301 ELEMENTS OF ELECTRICAL ENGINEERING I Cr. 4-0 (3-3) (0-0)

A course for ME, IE, and CE majors in the elements of electric circuits and basic energy conversion devices. Laboratory assignments and demonstrations form part of this course.

Prerequisite: MA 112

EE 302 ELEMENTS OF ELECTRICAL ENGINEERING II
Cr. 0-4 (0-0) (3-3

Continuation of EE 301, including control systems and basi electronics.

Prerequisite: EE 301

EE 311 ELECTRONICS I Cr. 3-0 (3-0) (0-0)

A two semester course on the basic principles of electronics an electronic circuits including vacuum tube and semiconductor de vices. S-domain methods are employed in the study of basi curcuits.

Prerequisite: EE 202

EE 312 ELECTRONICS II Cr. 0-3 (0-0) (3-0)

Continuation of EE 311.

Prerequisite: EE 311

EE 321 CIRCUIT THEORY III Cr. 3-0 (3-0) (0-0)

A continuation of EE 202. Includes circuit response by Fourie and Laplace transform methods; and Foster and Cauer network two-terminal-pair ladder networks, constant-k filters, m-derive filters, lattice and composite filters, and distributed paramete circuits.

Prerequisite: EE 202

EE 332 ENERGY CONVERSION DEVICES Cr. 0-3 (0-0) (3-0

Basics of electromechanics as applied to energy conversion de vices; followed by studies of specific devices such as dynamc and other transducers, including transformers. Mathematica models of typical physical devices are discussed.

Prerequisite: EE 202 and Phy 211

EE 351 EE LABORATORY II Cr. 2-0 (0-6) (0-0)

Continuation of EE 252, with emphasis on electronic devices an circuits.

Prerequisite: EE 252 and 202

EE 352 EE LABORATORY III Cr. 0-2 (0-0) (0-6)

Continuation of EE 351, including energy conversion and contr devices.

Prerequisite: EE 351, EE 321 and EE 311

EE 362 ELECTROMAGNETIC THEORY I Cr. 0-3 (0-0) (3-0)

An analytical approach to static and time-varying fields, including Divergence Theorem, Poisson and Laplace equations; boundary-value problems.

Prerequisite: MA 321

EE 401 INTRODUCTION TO NETWORK SYNTHESIS I Cr. 3-0 (3-0) (0-0)

Fundamental concepts of network synthesis, including such topics as physical realizability of 1-port and 2-port networks; and maximally-flat filter functions. Senior elective.

Prerequisite: EE 321

EE 402 INTRODUCTION TO NETWORK SYNTHESIS II Cr. 0-3 (0-0) (3-0)

Continuation of EE 401, including methods and topics such as those developed by Darlington, Brume, Guillemin, Bott-Duffin, etc.

Prerequisite: EE 401

EE 411 ELECTRONICS III Cr. 3-0 (3-0) (0-0)

Course consists of topics related to communication electronics: Vacuum tube and semi-conductor tuned amplifiers; oscillators; modulation and demodulation. Some wave-shaping circuits will be studied.

Prerequisite: EE 312

EE 412 WAVE FORMING CIRCUITS Cr. 0-3 (0-0) (3-0)

Theory and design of generators and shapers of non-sinusoidal waves, including clampers, clippers, limiters, multivibrators, etc.

Prerequisite: EE 411

EE 431 FEEDBACK SYSTEMS I Cr. 3-0 (3-0) (0-0)

Linear control systems will be analyzed. Nyquist criterion, Bode and Nichols diagrams, and the root-loci methods will be used. The necessary mathematical and computer techniques will be developed.

Prerequisite EE 202 and MA 212

EE 432 FEEDBACK SYSTEMS II Cr. 0-3 (0-0) (3-0)

The synthesis of linear control systems, and the analysis of nor linear elements will be presented. State variable techniques wi be introduced.

Prerequisite: EE 431

EE 441 ADVANCED ELECTRIC MACHINERY Cr. 3-0 (3-0) (0-(

Generalized analysis of machines used for energy control an conversion using matrix transformation, etc.; application of metl ods of analysis to systems containing electric machines.

Prerequisite: EE 332

EE 442 SEMICONDUCTOR CIRCUITS Cr. 0-3 (0-0) (3-0)

Analysis and design of semiconductor circuits, including transis ors, tunnel diodes, etc. It also includes selected topics on use (modern semiconductor devices. Senior elective.

Prerequisite: EE 312

EE 451 EE LABORATORY IV Cr. 2-0 (0-6) (0-0)

This laboratory is largely devoted to experiments in electronic feedback control, and wave propagation.

Prerequisites: EE 312, EE 352, and EE 362

EE 452 EE LABORATORY V Cr. 0-2 (0-0) (0-6)

Final section of a five-semester undergraduate laboratory cours including advanced assignments and other project work for eac student.

Prerequisite: Senior standing

EE 461 LOGIC CIRCUIT DESIGN Cr. 3-0 (3-0) (0-0)

Boolean algebra; simplification and minimization methods (switching circuits; sequential circuits; pulsed sequential circuit etc.

Prerequisite: EE 312

EE 462 PHYSICAL ELECTRONICS OF MATERIALS Cr. 0-3 (0-0) (3-(

A course intended to enhance the student's fundamental unde standing of the physical electronics of materials, including su topics as free-electron theory; atomic bonding; quantum mechanic

electron emission; semi-conductor theory; plasma dynamics; breakdown mechanisms, etc.

Prerequisite: MA 321

EE 463 ELECTROMAGNETIC THEORY II Cr. 3-0 (3-0) (0-0)

Continuation of EE 362, including wave propagation and radiation.

Prerequisite: EE 362

EE 464 INTRODUCTORY DIGITAL COMPUTER PROGRAMMING Cr. 3-0 (0-0) (3-0)

A basic course dealing with programming in a generalized fashion without reference to any particular computer language so that knowledge gained is applicable to any digital computer. Included are such topics as number systems; data organization; flow diagrams; and computer applications.

Prerequisite: Senior standing preference will be given to Senior EE majors.

EE 471 INTRODUCTION TO COMMUNICATION THEORY I Cr. 3-0 (3-0) (0-0)

This course will discuss the mathematical representation of non-random signals including Fourier transforms; sampling theorems; modulation theory probabilistic concepts; random processes; power spectral density.

Prerequisite: Senior standing

EE 472 INTRODUCTION TO COMMUNICATION THEORY II Cr. 0-3 (0-0) (3-0)

Continuation of EE 471, including the study of basic information theory; random noise; signal-to-noise ratio; decision concepts; likelihood ratio; and selected topics.

Prerequisite: EE 471

EE 482 ELECTRIC POWER SYSTEMS Cr. 0-3 (0-0) (3-0)

Power system parameters, steady-state calculations, fault calculations and transients stability. Theory of symmetrical components with application to the operation of electric power systems under unbalanced and steady state conditions; components of instantaneous currents and voltages and their use in transient problems.

Prerequisite: EE 332

EE 483 LINEAR SYSTEMS ANALYSIS Cr. 3-0 (3-0) (0-0)

Elective course for engineering students in techniques of line system analysis including methods of treating electric circu analogs of linear mechanical and electromechanical systems, th Laplace transform, and systems with feedback.

Prerequisite: Some circuit theory and differential equations.

Industrial Engineering

COLLEGE OF ENGINEERING

IE 312 TIME AND MOTION STUDY Cr. 0-3 (0-0) (2-3)

This is a course in time measurements; subjective and objecti rating; uses of process charts; operations analysis and elementa statistical analysis. Principles of motion economy applied in d velopment of work methods and work layout with emphasis machine tool situations. Required of industrial engineering st dents.

Prerequisite: MA 211, ME 201

IE 321 ENGINEERING STATISTICS AND QUALITY CONTROL Cr. 3-0 (3-0) (0-

Introduction to applied statistical methods, including frequen distributions; statistical measurements; probability; economic a natural tolerances; risk and confidence levels. Required of juni industrial engineers.

Prerequisite: MA 212

IE 322 ENGINEERING STATISTICS AND QUALITY CONTROL Cr. 0-3 (0-0) (3-

Continuation of first course, with emphasis on control char design of sampling and quality control plans; application statistics in assembly operations; mixing and blending operatio bearing-and tool-wear problems; and related topics.

Prerequisite: IE 321

IE 331 PERSONNEL ADMINISTRATION Cr. 3-0 (3-0) (0-0)

Methods and techniques for developing and maintaining an ficient working force from the viewpoint of both the employ and employee. Selection, placement, testing, training, disciplir

morale, wage administration, and job evaluation are among topics covered. Required of industrial engineering students.

Prerequisite: Permission of the instructor.

IE 401 ENGINEERING ECONOMY Cr. 3-0 (3-0) (0-0)

Effects of economics on engineering decisions in design, selection, and replacement of equipment, and evaluation of property; theory of depreciation and obsolescence. Required of industrial engineering students.

Prerequisite: ECO 101

IE 421 WAGE INCENTIVES AND JOB EVALUATION Cr. 3-0 (3-0) (0-0)

Industrial engineering principles and statistical methods used in wage-incentive systems and systems in common use covering salaried and hourly-paid personnel. Technical elective.

Prerequisite: IE 331

IE 422 PLANT DESIGN AND LAYOUT Cr. 0-3 (0-0) (2-3)

A study of the interconnected modern techniques by which workable layouts can be developed for modern mass-production methods and essential coordination between plant layout, material handling, methods engineering, production planning and control. A project is assigned to provide application of the above techniques. Required of senior industrial engineers.

Prerequisite: Senior standing

IE 431 LINEAR PROGRAMMING Cr. 3-0 (3-0) (0-0)

Theory of design and application of linear programming models for mathematical decision making in complex industrial problems such as blending, scheduling, transportation, allocation of resources, plant design and location, and job evaluation. Industrial engineering technical elective.

Prerequisite: Permission of instructor

Mechanical Engineering

COLLEGE OF ENGINEERING

ME 101 ENGINEERING DRAWING Cr. 2-0 (0-6) (0-0)

The principles of orthographic projections; instrumental and freehand execution of auxiliary, isometric, oblique, and sectional

drawings; and the principles of dimensioning are stressed. Required of all first-year engineering majors.

ME 102 DESCRIPTIVE GEOMETRY Cr. 0-3 (0-0) (2-3)

Point, line, and space relations; intersections; revolutions; vectors; surface developments; conics; and problems in the field of mechanical and civil engineering. Required of all first-year engineering majors.

Prerequisite: ME 101

ME 211 MACHINE DRAWING Cr. 2-0 (1-3) (0-0)

Preparation of detail and assembly drawings, including dimensioning and sectioning of gears; cams, assemblies, and welded parts. Required of all second-year mechanical engineering majors.

Prerequisite: ME 101

ME 221 MANUFACTURING PROCESSES Cr. 3-0 (2-3) (0-0)

A study of processes and equipment involved in machining materials, with emphasis placed on the capabilities and limitations of the machines. Required of all second-year mechanical and industrial engineering majors.

ME 222 METALLURGY Cr. 0-4 (0-0) (3-2)

Fundamentals of metal structure; factors affecting properties; static and dynamic properties; corrosion; extraction of metals from ores; phase diagrams; alloy systems; and heat treatment. Required of all second-year mechanical and industrial engineering majors.

Prerequisite: CH 112

ME 231 APPLIED MECHANICS (STATICS)
Cr. 3-0 (3-0) (0-0)

The statics of particles and of rigid bodies in two-and three-dimensions; analysis of structures; friction, center of gravity; and moment of inertia. Required of all second-year engineering majors.

Prerequisite: PHY III

ME 232 APPLIED MECHANICS (DYNAMICS)
Cr. 0-3 (0-0) (3-0)

The kinematics and the kinetics of particles and rigid bodies; force, mass, and acceleration; work and energy; and impulse and momentum. Required of all second-year engineering majors.

Prerequisite: ME 231

ME 302 MECHANISM Cr. 0-3 (0-0) (2-3)

Analysis of the relative motion of machine parts to determine displacement, velocity, and acceleration. Required of all third-year mechanical and industrial engineering majors.

ME 311 THERMODYNAMICS Cr. 3-0 (3-0) (0-0)

Properties of substances; first law of thermodynamics; ideal gases; the gas turbine; liquids and vapors; heat exchangers; steam turbines; and the reversed cycle. Required of all third-year civil, industrial and electrical engineering majors.

Prerequisites: MA 211 and PHY 112

ME 321, 322 ENGINEERING THERMODYNAMICS I, II Cr. 3-3 (3-0) (3-0)

The basic principles of laws of thermodynamics; ideal and real gases; mixtures; application of laws to power cycles; refrigeration; air conditioning; flow processes; and gas compression. Required of all third-year mechanical engineering majors.

Prerequisite: MA 211 and PHY 112

ME 332 FLUID MECHANICS Cr. 0-3 (0-0) (3-0)

Hydrostatics and hydrodynamics; ideal and viscous fluids; compressible and incompressible fluids; flow through pipes and around objects. Required of all third-year civil, electrical, industrial, and mechanical engineers.

Prerequisites: ME 321 or ME 311

ME 342 MECHANICAL ENGINEERING LABORATORY I Cr. 0-1 (0-0) (0-3)

A basic course in measurements as used in fluid-flow and heat-power fields of mechanical engineering. Required of all third-year mechanical engineering majors.

ME 401 ADVANCED KINEMATICS Cr. 3-0 (3-0) (0-0)

Type, number, and dimensional synthesis; mechanical computing mechanisms; and the geometry of constrained motion; linkage design; and special purpose mechanisms. Senior technical elective.

Prerequisite: ME 302

ME 411 HEAT TRANSFER Cr. 3-0 (3-0) (0-0)

Steady and unsteady state conduction; free and forced convection; radiant heat transmission; and the design of heat transfer equipment. Required of all fourth-year mechanical engineering majors.

Prerequisite: ME 322

ME 412 THERMODYNAMICS III Cr. 0-3 (0-0) (3-0)

The compression and expansion of gases with rotary machinery; centrifugal compressor; centripetal turbine; axial compressor; and axial turbine. The third law of thermodynamics. The thermodynamics of energy conversion devices; thermionic engine; thermoelectric generator; and others.

Prerequisite: ME 322

ME 421 MACHINE DESIGN I Cr. 3-0 (3-0) (0-0)

A development of the design point of view, with the student encouraged to make design decisions. Areas covered are stress analysis, factor of safety; variable loads; stress concentration; and combined stresses. Required of all fourth-year mechanical engineering majors.

Prerequisite: CE 311

ME 422 MACHINE DESIGN II Cr. 0-3 (0-0) (3-0)

The analysis and design of parts used in modern machines. Topics studied are: combined stresses; shaft design; lubrication of bearings; and gear design analysis.

Prerequisite: ME 421

ME 431 INTERNAL COMBUSTION ENGINES Cr. 3-0 (3-0) (0-0)

A study of the internal combustion engine processes, including the air-standard cycle analysis; engine cycles; deviation of the real engine from the ideal engine; detonation; carburetion; fuel injection; cumbustion chamber and cylinder head design; engine lubrication; cooling; and performance. Senior technical elective.

Prerequisite: ME 322

ME 424 VIBRATIONS Cr. 0-3 (0-0) (3-0)

The basic theory of mechanical vibrations. Such topics as undamped, damped, forced steady-state and transient vibrations are studies. Laplace transformations; analogies involving equivalent electrical circuits and mobility methods are covered along with the determination of natural frequencies and mode shapes by the classical, Rayleigh, Stodola, influence coefficient and Holjer methods. Analog and digital computer techniques are programmed and illustrated for transient and multidegree of freedom problems.

ME 441 MECHANICAL ENGINEERING LABORATORY II
Cr. 1-0 (0-3) (0-0)

Advanced measurements in fluid flow and heat power, including related fields of vibration, balancing, and application of strain gauges. Required of all fourth-year mechanical engineering majors.

Prerequisite: ME 342

ME 451 ADVANCED STRENGTH OF MATERIALS
Cr. 3-0 (3-0) (0-0)

Selected topics such as theories of failure, unsymmetrical bending, curved flexural members, and thick-walled cylinders. Senior technical elective.

Prerequisite: CE 311

ME 452 EXPERIMENTAL STRESS ANALYSIS
Cr. 0-3 (0-0) (2-3)

An introduction to the theory, instrumentation and basic techniques of stress analysis, covering stress determination from strain measurements; strain guages; photoelasticity; and the theory of plasticity. Senior technical elective.

Prerequisite: ME 451

Art

COLLEGE OF FINE AND APPLIED ARTS

ART 111, 112 FOUNDATION COLOR AND DESIGN
Cr. 3-3 (0-6) (0-6)

A foundation course for art majors in which the elements and principles of design are used to complete simple and practical experiments in the visual-arts field. Accepted design concepts are thoroughly explored, but opportunities for design through drawing and perception are also encouraged. Required of all first-year art majors.

ART 121, 122 FOUNDATION DRAWING Cr. 3-3 (0-6) (0-6)

A study of the two-dimensional surface and the use of line, area, and volume to create form. The course includes drawing from still life, from landscapes, and from the human figure. Required of all first year art majors.

ART 131 ANCIENT ART Cr. 3-0 (3-0) (0-0)

The visual arts in the ancient world from the Paleolithic period to the Byzantine Empire. Required of all first-year art majors.

ART 132 MEDIEVAL AND RENAISSANCE ART Cr. 0-3 (0-0) (3-0)

The visual arts of the Middle Ages and the Renaissance. Required of all first-year art majors.

Prerequisite: ART 131

ART 221, 222 FIGURE DRAWING I Cr. 2-2 (0-6) (0-6)

The study of the human figure, its form, mass, and proportions. The human figure is also studied in relation to its environment. Live models are used. Required of all second-year art majors.

Prerequisite: ART 122

ART 224 STRUCTURAL REPRESENTATION Cr. 0-3 (0-0) (0-6)

The study of structural drawing through experiences with orthographic projection, isometric drawing, mechanical perspective, and three-dimensional model making. Required of all second-year visual design majors.

ART 225, 226 DRAWING Cr. 3-3 (0-6) (0-6)

A continuation of FOUNDATION DRAWING for painting majors. Emphasis is placed on imaginative, expressive representation and the communication of ideas along with the development of sound draftsmanship.

Prerequisites: ART 121, 122

ART 231 BAROQUE THROUGH IMPRESSIONISM ART Cr. 3-0 (3-0) (0-0)

The visual arts in the modern world from the end of the Renaissance to the 1900's. Required of all second-year art majors.

Prerequisites: ART 132

ART 234 ART THROUGH THE AGES Cr. 0-3 (0-0) (3-0)

A general survey of the history of art beginning with Egypt and continuing through modern times. It is given as an elective to students in other departments.

ART 241, 242 PAINTING I Cr. 2-2 (0-6) (0-6)

An introductory course in beginning painting. Although the technique of oil painting is predominant, experiments are conducted in gouache, watercolor, and tempera. Concepts of design, composition, and color are studied. The development of the intuitive and creative ability of the individual is given careful attention. Required of all second-year art majors.

Prerequisite: ART 112, 122

ART 244 PAINTING Cr. 0-5 (0-0) (0-12)

A course designed to introduce the second year painting major to a working nomenclature and a familiarity with traditional processes of picture making.

Prerequisite: ART 241

ART 251, 252 VISUAL DESIGN I Cr. 3-3 (0-6) (0-6)

An introduction to visual design. Basic design projects are explored and worked out during both semesters. A study of writing and lettering is also carried through the year; the progression is from the Roman capitals to letters and types of the present and the creation of personal forms. Required of all sophomore visual design majors.

Prerequisites: ART 112, 122

ART 271, 272 TEXTILE DESIGN I Cr. 4-4 (0-9) (0-9)

An introduction to woven and printed textile design. The student is given practice in rendering techniques and printing methods. The course also covers nature study as applied to textile design. Required of all second-year textile design majors.

Prerequisite: ART 112

ART 311, 312 COMPOSITION Cr. 3-3 (0-6) (0-6)

An advanced consideration of design principles applied to weekly assigned problems. Resourcefulness in technical treatment and imaginative approach are encouraged.

ART 321, 322 FIGURE DRAWING II Cr. 2-2 (0-6) (0-6)

A continuation of Figure Drawing I. Required of all third-year painting majors. New techniques and media are introduced.

Prerequisite: ART 222

ART 323, 324 ILLUSTRATION Cr. 3-3 (0-6) (0-6)
Problems in illustration involving various media. Every effort is made to allow the student to develop a personal approach consistent with good design and draftsmanship.
Prerequisite: ART 222

ART 332 CONTEMPORARY ART Cr. 0-3 (0-0) (3-0)
Painting, architecture, and sculpture of the Twentieth Century. Required of all third-year art majors.
Prerequisite: ART 231

ART 333 ART OF THE MIDDLE AGES Cr. 3-0 (3-0) (0-0)
The architecture, sculpture, painting, and minor arts of Western Europe from 500 to 1500 A. D.
Prerequisite: ART 231 or ART 234

ART 334 ART OF THE RENAISSANCE Cr. 0-3 (0-0) (3-0)
The painting, sculpture, and architecture of Western Europe from 1400 to 1600 A. D.
Prerequisite: ART 231 or ART 234

ART 335 BAROQUE ART Cr. 3-0 (3-0) (0-0)
Painting, architecture, sculpture, and minor arts of Western Europe from 1600 to 1900 A. D.
Prerequisite: ART 231 or ART 234

ART 341, 342 PAINTING II Cr. 7-7 (0-15) (0-15)
An intermediate course, with painting problems related to the individual and surveyed through the history of painting. The student works from the figure, nature, and still life with an emphasis toward his personal development.

ART 351, 352 VISUAL DESIGN II Cr. 4-4 (0-9) (0-9)
A further investigation of visual design with emphasis on the design of the poster, book, and various formats of visual communication. Required of all junior visual design majors.
Prerequisite: ART 252

ART 363, 364 FASHION ILLUSTRATION Cr. 3-3 (0-6) (0-6)
An introduction to the rendering of the fashion figure and accessories.

ART 371, 372 TEXTILE DESIGN II Cr. 4-4 (0-9) (0-9)

Advanced problems in designing and the study of woven and printed fabrics. The course includes design experimentation on the hand loom and in the printing studio. It also covers methods of designing patterns for fashion and decorative fabrics. Required of all third-year textile design majors.

Prerequisite: ART 272

ART 373, 374 HANDLOOM WEAVING I Cr. 2-2 (0-6) (0-6)

This course gives the student the opportunity to learn the basic principles of hand weaving and to experiment with colors and textures suitable for application to the power loom. He is encouraged to design directly on the loom and to use a variety of available materials.

ART 381, 382 PHOTOGRAPHY I, II Cr. 2-2 (1-2) (0-4)

A basic survey of the theory of black and white photography. Darkroom experience includes the development of film, contact and enlargement printing, and basic photographic chemistry. Students must furnish their own cameras.

ART 383 GRAPHIC REPRODUCTION Cr. 2-0 (2-0) (0-0)

A study of the basic processes of the graphic arts. Several field trips are taken to commercial printing, typography, and photoengraving houses.

ART 386 TYPOGRAPHY Cr. 0-2 (0-0) (0-6)

Exercises in basic typography usage. Small problems of a purely typographic nature are solved, set, and printed.

A junior visual design elective.

ART 421, 422 FIGURE DRAWING III Cr. 2-2 (0-6) (0-6)

A continuation of Figure Drawing II. Required of all fourth-year painting majors. More emphasis is placed on individual expression and interpretation.

Prerequisite: ART 322

ART 423, 424 ADVANCED ILLUSTRATION Cr. 3-3 (0-6) (0-6)

A continuation of Illustration. The aim is to develop in the student a professional approach in one of the areas of specialized illustration.

Prerequisite: ART 324 or ART 364

ART 441, 442 PAINTING III Cr. 7-7 (0-15) (0-15)
Advanced problems in painting with emphasis on personal development. Individual criticisms and seminar discussions of contemporary problems in painting.
Prerequisite: ART 342

ART 451, 452 VISUAL DESIGN III Cr. 7-7 (0-15) (0-15)
A complete corporate recognition and public relations campaign is developed for an area of commerce or industry chosen by the student. This starts with the design of a trademark and carries through the various public relations or advertising formats necessary to service such an endeavor. A portfolio is prepared under the direction of the staff; emphasis is on excellence of presentation. Further work in book design or in lettering and typographic areas are assigned. Required of all fourth-year visual design majors.
Prerequisite: ART 352

ART 471, 472 TEXTILE DESIGN III Cr. 7-7 (0-15) (0-15)
A study of the more complex problems in designing fabrics both woven and printed, with emphasis on originality. Professional portfolio of original work is required. Required of all fourth-year textile design majors.
Prerequisite: ART 372

ART 473, 474 HANDLOOM WEAVING II Cr. 2-2 (0-6) (0-6)
An advanced course giving the student opportunity to develop original designs on the handloom and to use the loom as a creative medium. A variety of yarns, colors, textures and techniques are explored to achieve a well balanced portfolio of weaving.

ART 481, 482 ADVANCED PHOTOGRAPHY Cr. 3-3 (0-6) (0-6)
Technical exploration and the development of the photographic medium as a means of expression.
Prerequisite: ART 382

ART 483, 484 PRINTMAKING Cr. 2-2 (0-6) (0-6)
A studio course dealing with fine arts graphic processes such as serigraphy, woodcuts, linoleum cuts, and intaglio prints. Required of all fourth-year painting and visual design majors.
Prerequisites: ART 222, 241

ART 485, 486 ADVANCED TYPOGRAPHY Cr. 3-3 (0-6) (0-6)

This course entails a year of work in the typographic areas. A small book of at least 32 pages is designed, set, printed, and bound in at least ten copies. Emphasis is on highest standards of quality. A senior visual design elective.

Prerequisite: ART 386

ART 501, 502 PHILOSOPHY OF ART Cr. 3-3 (3-0) (3-0)

This course concerns itself with the designer in relation to society. The framework of the course is developed through aesthetics; but the applications, as they are of vital interest to the designer, are drawn from peripheral reading and discussion groups. The intention is to have the student come to grips with his position as an artist or designer in relation to our present industrial society and to our developing culture. Confrontations of contradictory points of view will be used as a means of widening the understanding of this relationship.

ART 503, 504 COMMUNICATIONS Cr. 3-3 (3-0) (3-0)

A course based on several areas of interest to the designer: semantics, visual language, typography, photography, psychology of color. Semantics and visual language are clearly allied; they are taught concurrently. Typography is in the area of greatest usefulness to the designer. The photographic direction might be chosen as an alternative. Psychology of color is a short, intensive investigation of the use of color accompanied by a study of some of its laws as they relate to the artist or designer.

ART 531, 532 HISTORY OF GRAPHIC DESIGN Cr. 3-3 (3-0) (3-0)

A course conceived as being of central interest to the graphic designer. Its beginning is marked by the development of the printed books; it follows the evolution of the printed page in its aesthetical, technical, economical, and historical aspects up to the present time. Essentially, this course concerns itself with the history of graphic or printed material from Gutenberg's time to the present time. It includes lectures, discussions, semester and term papers.

ART 551, 552 PROFESSIONAL COURSE Cr. 6-6 (0-12) (0-12)

The course requires of the student a concentrated effort in actual design. At least two or three finished projects are expected in each semester; they are partly experimental, partly concrete. Each student also begins work on a thesis plan: suggesting and discard-

ing, as the case may be, various schemes that will constitute the major achievement of the final year.

ART 553, 554 THESIS Cr. 9-9 (0-18) (0-18)

The dominant part of the year is devoted to the development of the thesis. It is meant to be a major concluding effort of genuine depth and scope; the endeavor is to have the student really sound the depths and explore the limitations of his theme. A high level of technical perfection and presentation is required.

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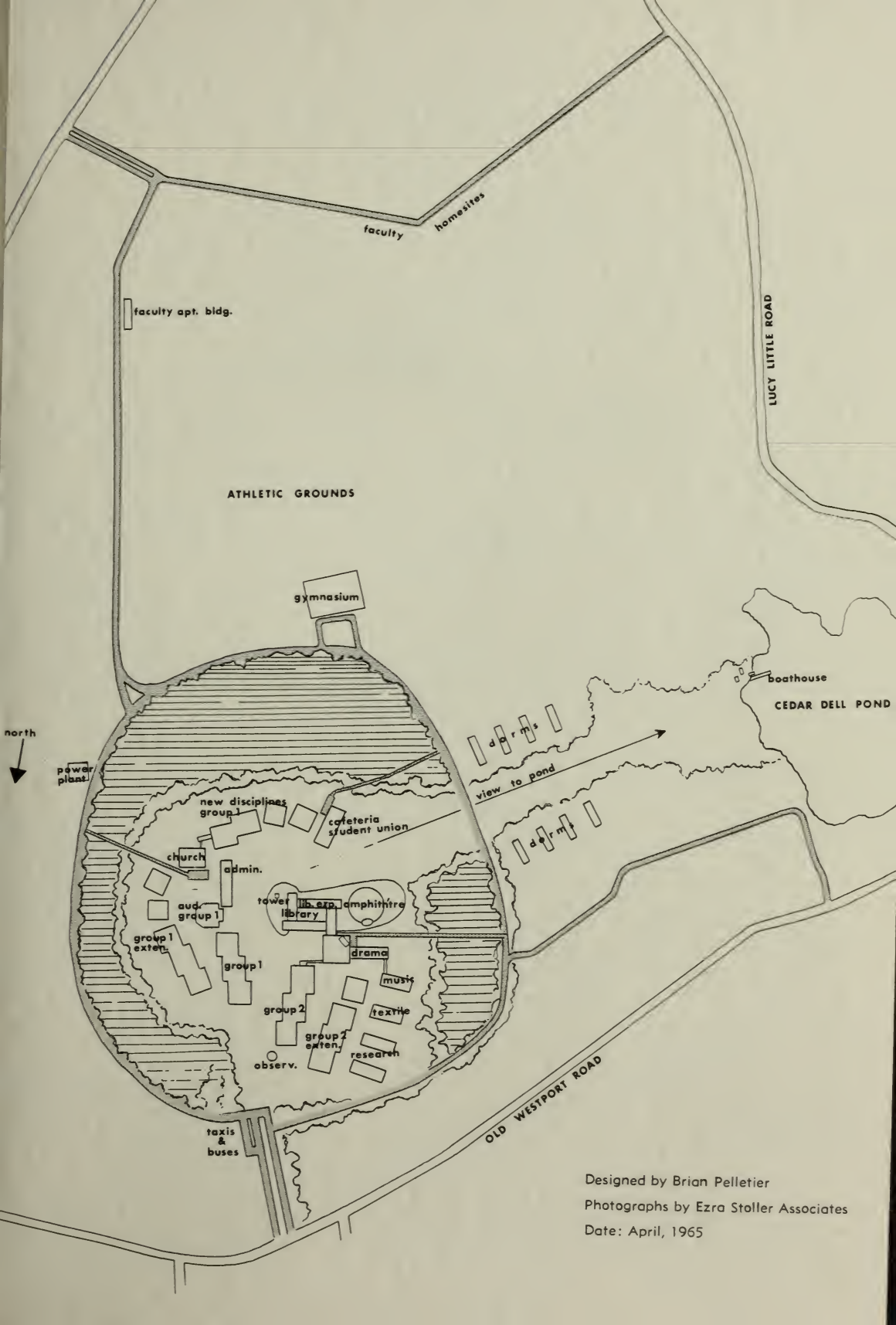

Designed by Brian Pelletier

Photographs by Ezra Stoller Associates

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