

STATE UNIVERSITY OF  
NEW YORK

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*College of Ceramics  
at Alfred University*

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GENERAL CATALOG 1951-1952

*Alfred University Publication*

STATE UNIVERSITY OF  
NEW YORK

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COLLEGE OF CERAMICS  
AT ALFRED UNIVERSITY



**ALFRED UNIVERSITY PUBLICATION**

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GENERAL CATALOG 1951-1952

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## CALENDAR FOR 1951-52

	First Semester	1951
Registration	Mon.—Thur.	Sept. 17-20
Instruction begins	Fri. 8:00 A.M.	Sept. 21
Registration part-time graduate students	Mon. 5 to 8 P.M.	Sept. 24
Founders' Day	Thur.	Nov. 1
Mid-Semester Grades	Wed. 12:00 M.	Nov. 14
Ag-Tech. Fall Fest.	Thur. & Fri.	Nov. 15-16
Thanksgiving recess begins	Wed. 10:00 A.M. (8 and 9 o'clock classes only)	Nov. 21
Instruction resumed	Mon. 8:00 A.M.	Nov. 26
Christmas recess begins	Fri. 10:00 A.M. (10 and 11 o'clock classes only)	Dec. 14
		1952
Instruction resumed	Thur. 8:00 A.M.	Jan. 3
Mid-year examinations begin	Wed.	Jan. 23
Examinations end: Sem. ends	Fri.	Feb. 1
	Second Semester	
Registration new students	Tues.	Feb. 5
Instruction begins	Wed. 8:00 A.M.	Feb. 6
Registration of part-time grad. students	Wed. 5 to 8 P.M.	Feb. 6
St. Pat's Festival half hol.	Thur.	Mar. 20
St. Pat's Festival half hol.	Fri.	Mar. 21
Mid-semester grades	Mon. 12:00 M.	Mar. 31
Spring recess begins	Fri. 10 A.M. (8 and 9 o'clock classes only)	Apr. 4 (Easter Apr. 13)
Instruction resumed	Tues. 8:00 A.M.	Apr. 15
Moving up day, half hol.	Thur.	May 8
Pre-registration	Tues. 1:30-5:00 P.M.	May 13
Final examinations begin	Wed.	May 28
Memorial Day, half hol.	Fri.	May 30
Exams. end: Semester ends	Fri.	June 6
116th Anniversary Comm.	Mon.	June 9

*Summer Session*

*Interession*

Term begins	Tues.	June 10
Term ends	Fri.	June 27

*Regular Summer Session*

Term begins	Mon.	June 30
Term ends	Fri.	Aug. 8

**CALENDAR FOR 1952-1953**

*First Semester*

1952

Registration	Mon.--Thur.	Sept. 15-18
Instruction begins	Fri. 8:00 A.M.	Sept. 19
Registration part-time graduate students	Mon. 5 to 8 P.M.	Sept. 22
Founders' Day	Thur.	Nov. 6
Mid-Semester Grades	Wed. 12:00 M.	Nov. 19
Thanksgiving recess begins	Wed. 10:00 A.M. (8 and 9 o'clock classes only)	Nov. 26
Instruction resumed	Mon. 8:00 A.M.	Dec. 1
Christmas recess begins	Wed. 10:00 A.M. (10 and 11 o'clock classes only)	Dec. 17

1953

Instruction resumed	Mon. 8:00 A.M.	Jan. 5
Mid-year examinations begin	Wed.	Jan. 21
Examinations end: Sem. ends	Fri.	Jan. 30

*Second Semester*

Registration new students	Tues.	Feb. 3
Instruction begins	Wed. 8:00 A.M.	Feb. 4
Registration of part-time graduate students	Wed. 5 to 8 P.M.	Feb. 4
St. Pat's Festival half hol.	Thur.	Mar. 19
St. Pat's Festival half hol.	Fri.	Mar. 20
Mid-semester grades	Wed. 12:00 M.	Mar. 25
Spring recess begins	Thur. 10 A.M. (8 and 9 o'clock classes only)	Apr. 2 (Easter Apr. 5)
Instruction resumed	Mon. 8:00 A.M.	Apr. 13
Moving up day, half hol.	Thur.	May 7
Pre-registration	Tues. 1:30-5:00 P.M.	May 12
Final examination	Wed.	May 27
Exams. end: Semester ends	Fri.	June 5
117th Anniversary Comm.	Mon.	June 8

*Summer Session*

1953

*Interession*

Term begins	Tues.	June 9
Term ends	Fri.	June 26

*Regular Summer Session*

Term begins	Mon.	June 29
Term ends	Fri.	Aug. 7

**ALFRED UNIVERSITY SUMMER SESSION**

A six-week summer session is conducted by Alfred University. During this session there are offered special courses in pottery, glazing, drawing, and modeling as well as courses in the liberal arts.

# STATE UNIVERSITY OF NEW YORK

The New York State College of Ceramics at Alfred University is part of State University of New York which was established by the State Legislature in 1948. State University now comprises twenty-two colleges and eleven institutes, separated geographically, but united in the purpose to improve and extend, where necessary, the opportunities for youth to continue their education after high school.

As a whole, State University offers cultural, technical, and professional courses of study that include liberal arts, mechanical technology, home economics, agriculture, forestry, education for medicine or teaching.

Governed by a fifteen-member Board of Trustees appointed by the Governor, State University of New York plans for the total development of State-supported higher education. Each unit of State University is locally administered, and students apply directly to the institution for admission.

State University is placing particular emphasis during the current year on the development of programs in research, the cultural arts, health services for students, and pattern of general education and enrichment of the curriculum on each campus.

To the full limit of its facilities for 30,000 students, State University admits all qualified students regardless of race or color, creed or economic status. Commissioned by the people of New York State, the University offers equal opportunities to youth—let each become all he is capable of being.

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NOTE: Members of the faculty also serve on committees of the University Faculty.



# **THE NEW YORK STATE COLLEGE OF CERAMICS**

## **OBJECTIVES**

CHAPTER 383 of the Laws of New York of 1900 stated that the purpose of the new institution at Alfred was "to give scientific, technical, art and practical training for the manufacture of all kinds of ceramic products and to conduct experiments in reference to the value for commercial purposes of clays and shales of New York State."

During the fifty-two years of its existence, the institution has kept its sights high. Its principal desire has been to afford students a program of progressive ceramic education and stimulating research which will prepare them to be not only good ceramists but also good citizens.

## **LOCATION**

The College is at Alfred University, Alfred, N. Y. The village of Alfred is in Allegany County, 74 miles south of Rochester, 12 miles southwest of Hornell, and 14 miles northeast of Wellsville. It is located on state highway 244, which, two miles east at Alfred Station, connects with state highway 36 and the main line of the Erie Railroad. Alfred, with a population of 700, is situated at an elevation of 1800 feet. Detached from the distractions of large municipal centers and with an exceptionally fine climate, its location enhances the opportunities for a successful college career.

## **HISTORY**

The College had its beginning as the New York State School of Clay Working and Ceramics, which was established at Alfred University in 1900. Two men, Boothe C. Davis and John J. Merrill, visioning the promising position ceramic education was to take in the professional and industrial life of the nation, labored unceasingly for its establishment.

At the time the school was established there was only one other school offering specialized courses in ceramics, and together these institutions pioneered in the fields of ceramic education.

It was under the guidance of its first director, Charles Fergus Binns, and the then president of Alfred University, Boothe C. Davis, that the philosophy of the school was developed and the foundation laid for further growth. During the administration of Dr. Binns (1900-1931), the first school building (Binns Hall) was erected and enlarged, courses of instruction were developed, student registration increased from five to one hundred sixty-nine, the importance of ceramic education was proved, and plans for expansion of the school were developed.

In 1932, the school was raised by legislative action to the rank of a college, and it was named the New York State College of Ceramics. A new building (Merrill Hall) was built and equipped, and the first

course in Glass Technology in the country was established. Funds appropriated by the Legislature provided not only for the new well-equipped building but also for an appreciably enlarged staff.

Dr. Major Edward Holmes was appointed the first Dean of the College and served in that capacity from 1932 to 1946. During those years Dean Holmes worked with Presidents Davis and Norwood in carrying the College forward. Under the direction of Dean Holmes, the engineering and technology courses were strengthened and broadened, the interest of state manufacturers was attracted to the College, the Ceramic Experiment Station was established (1936), ground was laid for the development of a research program, the engineering curriculum was accredited by the Engineers' Council for Professional Development, state moneys were appropriated for a planned classroom and laboratory building, plans were drawn up for a research and development building, and carefully planned studies of the State's mineral resources were commenced.

During the years of World War II, registration decreased but the research work of the College increased rapidly. The staff readjusted its efforts to care for the demands being placed on the College and made numerous contributions to the war effort.

Under the guidance of Dr. S. R. Scholes, who served as Dean 1946-1948, provisions were made for handling the heavy research program and the record registration stemming from World War II, the engineering and technology courses were reviewed and reconstituted to include strengthened basic courses and courses in humanistic-social studies, impetus was given to further development in the ceramic design program, a well serviced reference library was established, appropriations were obtained for the erection of a grinding and clay-storage building, and positions were established for the purpose of strengthening work at the graduate level.

Ever since its beginning, the College, while contributing greatly to ceramic education, has been keenly aware of the developments taking place in education and of the advancements being made in science. Its administrators have been eager to bring to the students the benefits of the most progressive thinking in all phases of ceramics. As a consequence of this progressive attitude, the College, with its well qualified staff and exceptionally well-equipped laboratories, offers outstanding undergraduate and graduate courses in Ceramic Engineering, Ceramic Technology, Glass Technology and Design.

### CONTROL

The College of Ceramics is a unit of the State University of New York and as such is under the general direction of the officers and Board of Trustees of that University. Because of the law which established the College in which certain powers were granted to Alfred University, it is known as one of the "contract" or "statutory" colleges within the State University.

The College is supported by legislative appropriations made annually and based on prepared budgets approved by the Board of Trustees of the State University and by the Board of Regents.

The trustees of Alfred University have been entrusted with the responsibility of operating the College of Ceramics and they appoint annually a Board of Managers which acts in an advisory capacity to it in carrying on the affairs of the College. The President of Alfred University is President of the College of Ceramics and Chairman of the Board of Managers. Several other administrative officers of Alfred University act in their respective capacities for the College.

The immediate direction of the affairs of the College is carried out by the Dean and his Executive Committee which is composed of the chairmen of the various departments.

### ADMISSION

#### *Policy*

It is the responsibility of the Committee on Admissions to select those candidates who have character, intelligence and purpose and who will profit most by the program offered by the College.

The Committee on Admissions meets at frequent intervals to consider applications and to review the scholastic records of candidates. Soon after a candidate's application has been considered, he or she is notified of the committee's action. Ordinarily the candidate is definitely accepted or rejected but in border-line cases decisions may be deferred until nearer the time of the opening of College.

Enrollment is limited and it is not possible to accommodate all qualified applicants. It is advantageous therefore to make application early, preferably before April 15.

#### *Procedure*

Catalogs and application blanks may be secured by writing to the Director of Admissions. The application blanks consist of three forms:

Form I, application for admission, should be completed by the candidate in full and returned to the Director with a \$5 application fee. This fee will not be refunded.

Form II, the official secondary-school transcript, is to be filled out by the secondary-school principal or counselor and mailed directly to the Director.

Form III is in duplicate. The family physician and one other person, not a member of the candidate's family, should complete these forms and mail them directly to the Director.

All candidates are requested to take the Scholastic Aptitude Test of the College Entrance Examination Board. These tests are given at convenient locations throughout the world in December, January, March, April, May and August of each year. For full information as to location of tests, fees, sample examinations and scheduling for the

examination, write The College Entrance Examination Board, Box 592, Princeton, New Jersey. It is preferred that the December or January tests be taken to facilitate early completion of the candidate's application for admission.

A personal interview is an important part of the admissions procedure. The candidate should make an appointment with the Director of Admissions to visit the Alfred University campus and to meet the Dean of the College of Ceramics.

### ENTRANCE REQUIREMENTS

1. The basic requirement for admission to the College is graduation from an accredited secondary school. The candidate is expected to rank in the upper portion of his class and to present a total of 16 units, including English, 4 units; mathematics,  $2\frac{1}{2}$  units, science, 2 units, electives,  $5\frac{1}{2}$  units; and foreign language, 2 units. In certain cases, substitution may be made for the foreign language requirement.

The unit represents a course of five recitations per week throughout the school year. Since, in the total of 16 units, four years of English are counted as four units, a total of 15 units will be accepted from states in which four years of English are counted as only three units.

#### ENGLISH—4 units.

The candidate must be familiar with elementary rhetoric, both as a science and an art, and must be proficient in spelling, punctuation, idiom, and division into paragraphs. Preparation must include the work in English prescribed by the various college associations.

#### FOREIGN LANGUAGE—2 units.

Latin, German, French, or Spanish, is acceptable for the foreign language requirements. In certain cases, substitutions of other courses for foreign language may be made, or the fulfilling of the foreign language requirements may be deferred until the summer following the freshman year.

#### MATHEMATICS— $2\frac{1}{2}$ units.

Elementary and intermediate algebra, including fundamental operations, factoring, fractions, ratio, proportion, radicals, quadratics; plane geometry, including the straight line, angle, circle, proportion, similarity and areas.

#### SCIENCE—2 units.

Biology, general science, physical geography, physics or chemistry. Any two subjects may be offered.

#### ELECTIVES— $5\frac{1}{2}$ units.

Electives may be chosen from any of the regular high school subjects such as foreign languages, social sciences, mathematics or natural sciences. One or two units may also be chosen from each of the

following, but not more than four units may be chosen from these subjects altogether: agriculture, domestic science, commercial subjects, drawing and design, industrial arts, music, public speaking, and dramatics.

Admission to the Department of Design is governed by substantially the same requirements as those for Technology and Engineering, but high school art work, if of superior quality, may be substituted to a limited extent for some of the requirements listed above.

The majority of applicants comply in full with the unit requirements. In exceptional cases where evidence of high scholarship is presented, applicants may be given the opportunity to make up certain deficiencies in summer sessions or by taking entrance examinations. Application for such an examination, which is given only during the first week of the fall semester, must be made not later than July 1.

### SPECIAL REQUIREMENTS

After applicants are found to meet the general requirements stated above, the Admissions Committee proceeds to consider them as potential candidates for the next entering class. These deliberations are made on an individual basis with careful attention to the following considerations.

1. *Scholarship.* Experience has shown that high school students who rank low scholastically rarely make a success of their ceramic education. It is the policy of the institution, therefore, to reject the applications of all students who do not have a good high-school scholastic record.
2. *Adaptability.* In addition to general scholastic ability, adaptability to the special requirements of a ceramic education are required. Applicants for admission to the Ceramic Art Department should, by a personal interview or by submitting exhibits of their high-school art work, show satisfactory evidence of adaptation to art work. This may be done either before or after they make formal application for admittance.
3. *Interest.* Evidence of special interest in gaining a ceramic education of the kind offered by the New York State College of Ceramics, and absence of too absorbing an interest in other fields of education, will influence the committee in making its decisions.
4. *Personal qualities.* Personal traits of character, such as initiative, industry, appearance, honesty, originality, and resourcefulness are given due consideration.
5. *Likelihood of continuing through the four-year course.* It is necessary to refuse admittance to applicants who want to enroll in the College and transfer to another institution before completing the course. Admittance may also be refused in cases

where the applicant cannot make satisfactory financial arrangements.

6. *Age, character, and health.* Applicants must be at least sixteen years of age, of good moral character, and possessed of health which permits them to do satisfactory work. All entering students must have a physical examination.
7. *Date of application.* The choice between applicants who equally meet the foregoing requirements will be determined by the date of application.
8. *Interviews.* It is highly desirable for each candidate to present himself at the College for an interview with the Dean, and, if possible, with other members of the Admissions Committee. Interviews will be much more profitable if, at least several days before them, the applicant's credentials, particularly the certificate of recommendation conveying the high-school record, have been received by the College officers. Appointments for interviews should be made several days in advance by writing to the Director of Admissions.

### ADMISSION TO ADVANCED STANDING

Students in other approved institutions may transfer to the College. Their admittance is subject to the following regulations:

1. They must supply a statement of their entrance units and date of graduation from high school, a transcript of their college record, a letter of honorable dismissal by the proper official, and a statement that they are eligible to return to the institution which they are leaving.
2. Credit will be granted for equivalent courses in which the grades are C or higher. No credit is given for grades of D or lower.
3. Transfer students are subject to the same standards of selection as entering freshmen.

### SPECIAL STUDENTS

It is not the policy of the institution to encourage the enrollment of special students who are not candidates for a degree. Disappointment, both to the institution and the student, usually results from this arrangement. However, in special cases where the applicant is of mature age, and of extraordinary ability, arrangements may be made for admittance as a special student.

## CAMPUS FACILITIES

THE COLLEGE OF CERAMICS is an integral part of Alfred University, and its students are students of Alfred University. In view of this, students of the College have available to them all the facilities provided by Alfred University. Among the most important of these facilities are Alumni Hall, an assembly hall used for dramatic production, student assemblies, moving pictures, commemorative exercises, concerts and Forum series; The Carnegie Library, containing over 65,000 volumes and providing reading and seminar rooms; The Clawson Infirmary, providing facilities for the treatment of student illnesses and staffed by two University doctors and by registered nurses; Kenyon Memorial Hall, providing a chapel and rooms for special meetings; The Merrill Athletic Field, equipped with large bleachers, floodlights and a field house; South Hall, containing a gymnasium for women and adjacent to tennis courts and archery range and flats for outdoor activities for women; the Susan Howell Social Hall, providing kitchen, dining room and reception room and available for special meeting purposes; the Track and Field House, containing an indoor track, a basketball court and a jumping and vaulting pit, besides training quarters, team rooms and showers, and used for large dances; and the Campus Union, a place to eat, relax and meet friends.

### ORIENTATION WEEK

The first week of the College year is devoted to orienting the entering students into university life and into their scholastic work. Full attendance by all freshmen and transfers is required. Instructional programs are provided by upper classmen and members of the faculty. Intelligence and aptitude tests are given. Private conferences with individual members of the faculty are provided. These more formal parts of the week's program are supplemented by amusements and "get-acquainted" meetings. The result is that by the end of the week, the "new" students are informed on what the College has to offer, what is expected of them, and how to go about getting adjusted to their new environment and bridging the gap between high school and college.

### GENERAL ACTIVITIES

Campus life is motivated and governed by the students under the guidance of the personnel Deans. Among the many sponsored activities, each is certain to find one or more of interest. There are clubs and organizations carrying on programs pertaining to languages, sciences, drama, art, journalism, athletics, music, outdoor sports, aviation and scouting. There are honorary scholastic and service organizations which recognize a student's accomplishments in different areas.

## ORGANIZATIONS IN THE CERAMIC COLLEGE

The Student Branch of the American Ceramic Society is an organization composed of students taking ceramic engineering, ceramic technology or glass technology. Its present membership is 300. Students elect their officers who are responsible for arranging a program for the year. Through the efforts of the officers there is brought to the campus, each month, some important speaker having a message of particular interest to the members.

The St. Patrick's Board is composed of upper-class technologists and engineers, elected by the seniors. The board manages the most important social event of the year, which is a celebration in honor of the birthday of St. Patrick, the patron saint of engineers. The celebration entails one-and-one-half days of fun and relaxation and associated with it are an all-university assembly, a tea dance, a parade of floats, and a Ceramic College open house.

Keramos is the national honorary ceramic engineering fraternity. Its membership is composed of students from all ceramic schools and colleges, and men particularly prominent in the ceramic engineering profession. The principal objectives of the fraternity are: to promote and emphasize scholarship and character; to stimulate mental achievement; and to promote interest in ceramic engineering. Student membership is based on scholastic record, character, and interest in ceramics. It is the highest honor a student in ceramic engineering or technology can attain.

## PUBLICATIONS

The University students issue a weekly newspaper, the "Fiat Lux," and a year book, the "Kanakadea." Ceramic students interested in journalism or publishing as a hobby find ample opportunity for active work on the publications.

## RELIGIOUS LIFE

Though all student religious activity is voluntary, a well-organized religious program forms an integral part of life on the campus. Distinctly non-sectarian in character, it provides for a strong emphasis on the spiritual development of the students. There is provided a Director of Religious Activities who as University Chaplain, and advisor to the Religious Fellowship of Alfred, does much to stimulate an interest in and an appreciation for things spiritual.

Chapel service is held each Wednesday during the College year. These services feature brief talks by the Chaplain and special music by the chapel choir. Attendance is voluntary.

Sunday services of a non-denominational character are held under the auspices of the Union University Church in the Seventh-Day Baptist Church.

The First Seventh-Day Baptist Church of Alfred offers opportunity for worship to those who are accustomed to worship on the Seventh Day.

Extending the benefits of weekly services of worship are the Canterbury Club for Episcopal students, the Newman Club for Catholic students, and the Hillel Foundation for Jewish students.

## CONCERTS AND LECTURES

An outstanding group of lecturers and musical artists is brought to the campus each year to appear on the University Forum and in University assemblies. These programs are maintained through the inclusive college fee, and all regularly-enrolled students are admitted without extra charge.

## SOCIAL LIFE

Social life revolves around the open houses, informal dancing parties, the formal St. Pat's, Interfraternity and University Balls, various sports events, teas, receptions, the campus union, and the Cooperative Motion Pictures.

## SELF-HELP

The College cannot guarantee that a student will find work which will help him pay part of his expenses. Students as they enter college should be prepared to finance their first two years, at least. Juniors and seniors are eligible for students assistantships and some find gainful employment in dining halls, village shops, and garages. The best means for a student to augment his resources substantially is to find employment during the summer vacation period.

## INDUSTRIAL EXPERIENCE

Students are urged to secure employment in ceramic plants during the summer-vacation period. A few months' work under industrial conditions aid materially in rounding out their training. Every possible aid is given students in their efforts to obtain summer positions.

## VETERANS

The College continues to give preference to veterans in the selection of its enrollment. Approximately 30 percent of the present student body are veterans, either new students or those who have returned to complete their courses. The benefits obtainable under the G. I. Bill of Rights are open to both men and women students according to degree of eligibility and amount of service. A veteran's adviser makes frequent visits to the campus for consultation.

## STUDENT HOUSING

In normal times all freshmen, unless excused by the Dean of Men or the Dean of Women, live and take their meals in one of the University dormitories. These include Bartlett Memorial Dormitory, for men, and The Brick, for women. Each is in charge of a housemother, who is assisted by upperclass counselors. Most of the rooms in Bartlett are single, whereas all in The Brick are double.

After the freshman year, students who have joined fraternities or sororities live and board in those houses. Non-sorority women are normally accommodated in The Brick. Men who do not live in fraternity houses are lodged in University dormitories or private homes.

Veterans and their families find living quarters in Saxon Heights, a group of temporary dwellings erected by the F.P.H.A. near the Campus, on a site prepared by the State.

## MILITARY TRAINING

Students who wish to participate in military training while in attendance in the College of Ceramics have the choice of entering one of three military training units: A United States Army Interrogation Intelligence Team; A U. S. Corps of Engineers Heavy Equipment Battalion Reserve Unit; a United States Navy Reserve Unit.

## EXPENSES

**TOTAL EXPENSES** for students who are legal residents of the State of New York, for the two semesters of the college year, exclusive of personal expenditures, such as transportation, clothing, recreation, etc., may be estimated as follows:

	In		With Private	
	University	Dormitories	Families or in	Clubs
Board	\$400	\$400	\$300	\$400
Room	100	170	100	170
Inclusive College Fee	100	100	100	100
Deposits	17	25	17	25
Books, etc.	30	40	30	40
	<hr/>	<hr/>	<hr/>	<hr/>
	\$647	\$735	\$547	\$735

Out-of-state students can compute comparable budgets by adding to each of the columns \$300 for tuition.

Freshmen are required to live in the dormitories, unless excused for a compelling reason. By doing so, they have the services of upperclass counselors and the advantage of living with one another. Most upper-class students live in private homes, clubs, fraternities or sororities.

All freshmen in the Engineering and Technology courses are required to take Mathematics 21S, Plane Surveying, which is given during the three weeks immediately following Commencement. Students who take this course make their own arrangements for board and room during that period.

## TUITION

Legal residents of the State of New York pay no tuition. All students who are not legal residents of the State pay tuition of \$150 per semester, in addition to all other fees and expenses.

No person is considered eligible to register as a resident of the State of New York unless he has been a *bona fide* resident in New York for the six consecutive months next preceding the date of his enrollment. No person shall be considered to have gained or lost his residential status in this State for the purpose of registering by any conduct of his own while he is a student in the College, unless, after attendance at the College for one year, it can be clearly established by the student that his previous legal residence has been abandoned and a new one established in New York for purposes other than merely attending the College.

The residence of a minor follows that of parents or legal guardian, regardless of emancipation. The residence of a wife follows that of her husband. Any student whose residence thus follows that of another person, and who has not been a resident for the six months immediately preceding marriage or assignment to a guardian, cannot be considered to have gained residence until the full six-month period has elapsed.

## FEES AND DEPOSITS

The College reserves the right to change fees and deposits without notice.

### General Fees

In all departments .....\$100.00 per year

The general fees cover expenses for which students are obliged for laboratory courses, medical and infirmary service, athletics, library, campus tax, student year book, Student Branch of the American Ceramic Society, the college paper, the University Forum and plant inspection trips.

The statement concerning laboratory fees refers to ceramic laboratories only. In all the chemistry laboratories each course requires a fee of \$15.00 per semester, and each physics course involving laboratories requires a fee of \$15.00 per semester. Laboratory fee for Geology is \$15.00.

### Special Fees

Application (to accompany application for admission) . . . . .	\$ 5.00
Graduation . . . . .	10.00
Summer Surveying (Freshmen) Mathematics 21-S. . . . .	10.00
Special Tests . . . . .	1.00
Special Examinations . . . . .	5.00
Late Registration . . . . .	5.00
Preregistration . . . . .	25.00
Chemistry Breakage Deposit: Chemistry 1 . . . . .	10.00
Chemistry 5 . . . . .	10.00
Other courses in Chemistry. . . . .	15.00
Art Supplies Deposit (Art Students only) . . . . .	40.00

### DORMITORY EXPENSES

Dormitory Room Deposit, each year . . . . .	\$10.00
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The room deposits must be paid in advance at the time the room is reserved. This is not a part of the room rental. In case a student fails to occupy a room so reserved, the deposit is forfeited. Upon surrender of the room in good condition at the close of the school year, the deposit will be refunded to the student.

#### Dormitory Room Rentals, Per Semester:

In the Brick or Bartlett Dormitory . . . . .	\$85.00
In Burdick Hall, for upperclassmen . . . . .	50.00

The prices vary according to size and location of room. Prices in all cases are per person. All rooms are completely furnished. Students are to supply their own towels, bed linen and blankets.

#### Board in Dormitory Dining Hall, Per Semester:

In The Brick or Bartlett Dormitory . . . . .	\$200.00
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Residents of these two dormitories are required to board in the dining halls connected therewith. No credits or rebates for absences are allowed on board bills. The charges for board and room in dormitories will be in effect unless cost of food and labor or new forms of taxation make it necessary for the University to increase them. If and when such increases are made, they will become effective at the beginning of the following semester.

### TERMS OF PAYMENT

Tuition and other regular charges are billed at the beginning of each semester, during the process of registration. These bills cover the semester charges for tuition, laboratory and other fees, also room rental and board if the student rooms in a University dormitory.

All deposits are on a yearly basis and, in most cases, appear on the first semester bill. The breakage deposits provide for replacement of equipment broken or damaged and material wasted by students. The art-supplies deposit covers the cost of supplies used by the student in the Industrial Ceramic Design Department. Unused portions of these deposits will be returned to the students.

Semester bills are due when issued and must be paid, or definite and satisfactory arrangements made at the Treasurer's Office for payment, before the student is eligible to attend classes. If extension of time for payment is granted, a service charge is added to the bill in accordance with the time allowed. No regular extensions for a period longer than to December 1 for the first semester, and to April 1 for the second semester will be granted. No extension will be allowed on more than one-half of the general and special fees and deposits.

### REFUNDS

No refunds on account of tuition and fees will be allowed if the student withdraws after the middle of the semester.

A student withdrawing before the middle of the semester because of serious illness or other good and sufficient reason, may be granted a refund by the Treasurer of the University, the amount of such refund, if any, to be determined after full investigation of the circumstances. Board and room charges will be refunded on a pro-rata basis.

All other refunds will be made according to the following schedule:

Week of registration . . . . .	100% refund
First week after registration . . . . .	80% refund
Second week after registration . . . . .	60% refund
Third week after registration . . . . .	40% refund
Fourth week after registration . . . . .	20% refund
No refund after fifth week (including registration week)	

A special refund and credit policy has been formulated to protect those called into military service.



## CERAMICS

THE WORD CERAMICS is derived from the Greek word *keramos*, which means fired earth. To know ceramics fifty years ago was to know clays, shales, flints and feldspars, and to understand the methods involved in the manufacture of brick, tile, sewer pipe, terra cotta, pottery, and fire-clay refractories. During the years, ceramic technology has advanced greatly; and with the advance has come a more true understanding of the principles involved in the manufacture of ceramic products and a more full appreciation of the range of products made from fired earth. There is a continuing demand for ever better and special products, for items unheard of fifty years ago. In order to make refractories that would permit steel furnaces to operate at higher temperatures, glasses for the various radio tubes, more durable cements, dielectrics for ultra-high-frequency currents, spark plugs for faster airplanes, linings for jet engines, and numerous other articles of timely importance, the ceramist has had to go back to nature and concern himself with practically all non-metallic minerals. He has to learn not only the geology and physical characteristics of minerals but also how minerals can be concentrated, freed from their impurities and/or purified so as to produce a material that can be economically and satisfactorily used in his product. The knowledge gained from studies of nature are leading him to an understanding of how to make artificial minerals. It is his concern to understand how to fabricate articles from non-metallic minerals, to understand the reactions that take place as such minerals and mixtures of such minerals are heated to increasingly higher temperatures, and to know the properties of the finished products.

The most durable products about or in the home are usually ceramic products: the brick on the outside; the mortar in which the brick are laid; the insulation in the wall; the cement in the foundation; the plaster on the wall; the tile on the roof or the granules on the roofing shingles; the glass in the windows; the porcelain electric insulators; the tile on the bathroom floor and wall; the enamel on the stove, refrigerators, or washing machines; the sinks in the kitchen and bathroom; the bath tub; the dishes and glassware on the table; the refractory lining

in the chimney; the tile on the basement floor; and the knife sharpener. Many ceramic products are basic to other industries: refractories to the metallurgical industry; electric porcelain to the automotive, airplane, electrical and radio industries; abrasives to the manufacturing industries; porcelain and glass to the chemical industry. All these items and many more are produced by the ceramic industry.

The ceramic profession is one of the oldest and one of the most challenging. It has need for persons equipped and willing to develop it further. Great advancements are possible, and these will be made by well-trained, imaginative persons. Nearly 1,000 are registered in American schools and colleges preparing themselves for careers in the ceramic profession while approximately 2,000 are gainfully engaged in it. In normal times approximately 200 are graduated into the profession, one-third of them being graduated from the New York State College of Ceramics. It is significant that normally only 200 are graduated yearly to enter a highly technical industry comprised of thousands of plants and turning out products valued in billions each year. The opportunities for ceramic graduates are great.

A person may study to be a ceramic engineer, a ceramic technologist, a glass technologist, or a ceramic designer. All have their particular places in the field and each brings something particular to the industry. The specific course to follow can be determined by a person's aptitudes and desires. Each of these courses is described in detail under the Departments of Instruction.

## POLICIES

The policies of the College have been developed with reference to its principal function, the education of youth. Although students come to the institution for specialized training in ceramics, it is considered the duty of the College to make certain that the education received is one which prepares them for life as well as for a profession in ceramics. Courses are set up in such a manner as to present in logical sequence not only those fundamental and applied subjects so important to the ceramic engineer, ceramic designer, ceramic technologist or glass technologist, but also those subjects in the realm of humanistic-social studies which will aid the student in his association with society, will point out to him the important role he will be expected to play in society as well as his profession, and will make him a better citizen.

Staff proficiency is kept high by the encouragement given to participation in the affairs of educational and scientific societies, the establishment of direct contact with industry, direct association with research work, plant visitations, and advanced study.

Research is kept timely and alive by an active research and development program and the availability of exceptionally good equipment. Involving as it does studies of a fundamental scientific nature, studies in applied research, and studies concerning the utilization of New York

State minerals, the program affords the student an opportunity to become acquainted with practically all types of ceramic research. This program, which is sponsored not only by the College, but also by industry, federal agencies and associations, brings to the campus leading industrialists and outstanding research workers. Research carried on by undergraduate and graduate students links the teacher, the researcher, and student in a valuable educational experience.

Contact with the industries of the State is maintained through the splendid cooperation afforded the College by the Ceramic Association of New York State, whose special committees assist college authorities in evaluating its teaching and research programs. Contact with other State agencies is maintained through active cooperation with the New York State Science Service and the New York State Department of Commerce.

Encouragement is given to participation in extra-curricular activities because it is known that through such participation a student has the opportunity to learn the effectiveness of cooperative work and to develop talents not brought out by regular course work. The value of a student's participation in religious fellowship, dramatics, athletics, and journalism is difficult to evaluate, but experience has shown that such activities not only add much to the student's outlook on life but have served to develop confidence in areas outside his chosen field.

## BUILDINGS AND EQUIPMENT

The College now occupies Merrill Hall, a four-story brick building finished in 1932. In consequence of the building program now under way, it houses a number of its activities in remodeled space leased from Alfred University. Binns Hall, the original school building erected in 1900, has been razed. On its site rises the new Binns Hall, a duplicate in architecture of Merrill Hall and joined to it by two connecting structures, thus completing a quadrangle with central court.

This new building, with its equipment, will represent an outlay of more than one million dollars, and will provide the largest and most complete plant for ceramic education in America. It is scheduled for completion early in 1952.

An auxiliary building for grinding and clay storage, constructed of concrete block, was completed in 1949.

The ceramic laboratories are equipped with the most modern apparatus and machinery needed for clay and mineral processing, body mixing and preparation, shaping and forming of ware, drying and firing of samples, and the testing of products and materials. The special laboratories such as those for chemistry, petrography, spectroscopy, and X-rays have modern and adequate equipment. Besides the stationary equipment there are available the many small items of equipment and apparatus so essential to the conduct of special studies and research.

## LIBRARY

A highly important facility of the College is the ceramic reference library. Under the guidance of trained librarians, the students find here a wealth of published material in all phases of ceramic engineering, technology, art, and design, as well as in the related sciences. Equipped with work tables and chairs, the library is open five days and four evenings per week.

The number of bound volumes of art and technical books approximates 6000. In this number are not included unbound bulletins, reprints, pamphlets, and student theses. More than 200 periodicals are currently received on subscription.

Alfred University Library is also available to ceramic students. Its collection supplements effectively the ceramic library, particularly in humanistic-social subjects.

## DEPARTMENTS OF INSTRUCTION

### INDUSTRIAL NEEDS

The courses of instruction have been developed to satisfy the needs of the Ceramic Industry. Designers are needed to create shapes or forms, to select and develop colors, and to maintain standards in decoration. Technologists are needed to maintain quality and to further the understanding of the principles underlying the manufacture of ceramic products, whether in the area of fine china, building brick or refractories. Engineers are needed to work with people, money and machines for the purpose of producing ceramic wares.

Corresponding with these industrial needs are the three departments: Ceramic Engineering, Glass Technology, and Design. Students may take all three courses, but to do so would require at least seven years' work. If a student expects to graduate in four years he must choose one of these areas in which to specialize. The choice must be made when he enters college, if it is to be design. The choice between technology and ceramic engineering may be delayed until the end of the sophomore year, for the work of the first two years is the same for engineers and technologists. The work of the departments is described in more detail in the sections that follow.

### CERAMIC ENGINEERING

A ceramic product is one made from non-metallic, earthy, raw materials by a firing operation. With the exception of those made of glass, ceramic products are fundamentally similar. It is possible, therefore, to give a student a broad fundamental training in ceramics that fits him for usefulness in any of the divisions of the industry. His career in the industry will be determined by his aptitude in laboratory research and development, for plant production or for sales engineering. The college training is designed to give him the foundation on which to build.

In addition to a general cultural development, the department provides for a thorough grounding in the fundamental sciences of mathematics, chemistry, and physics. Most of the first two year's work is devoted to these subjects. The last two years of the course are devoted primarily to the application of these fundamental sciences to the technical and engineering problems of the ceramic industries.

The work of the ceramic engineer is usually the manufacture of ceramic ware. Although he may be engaged in research or sales, the ceramic engineer is primarily a production man. For this reason, the subjects of mathematics, mechanics, strength of materials, and equipment design and plant layout are emphasized.

This department is fully accredited by the Engineers' Council for Professional Development. Graduates are eligible for licensing as professional engineers after they have had the necessary industrial experience.

This program leads to the degree of Bachelor of Science (B.S.).

# CERAMIC ENGINEERING CURRICULUM

## First Year

<i>First Semester</i>	<i>Hrs.</i>	<i>Second Semester</i>	<i>Hrs.</i>
Mathematics 5 (College Math.)	5	Mathematics 6 (College Math.)	5
Chemistry 7 (General Inorganic)	5	Chemistry 8 (Qual. Analysis)	5
Industrial Mechanics 1 (Eng. Draw.)	3	Industrial Mechanics 2 (Desc. Geom.)	3
English 1 (Composition)	3	English 2 (Composition)	3
Ceramics 101 or 151 (Introd.)	1	Ceramics 102 or 152 (Introd.)	1
Physical Education	1	Physical Education	1
Assembly	0	Assembly	0
	18		18

Summer Term of three weeks following close of second semester:

Mathematics 21 (Plane Surveying).....3 credit hours

## Second Year

<i>First Semester</i>	<i>Hrs.</i>	<i>Second Semester</i>	<i>Hrs.</i>
Mathematics 15 (Calculus)	4	Mathematics 16 (Calculus)	4
Chemistry 13 (Quant. Anal.)	3	Chemistry 40 (Physical Chem.)	3
Physics 11 (General Physics)	4	Physics 12 (General Physics)	4
Geology (Structural)	3	Mineralogy (Introd. & Cryst.)	3
Ceramics 103 (Unit Operations)	3	Ceramics 104 (Raw Materials)	4
Physical Education	1	Physical Education	1
Assembly	0	Assembly	0
	18		19

## Third Year

<i>First Semester</i>	<i>Hrs.</i>	<i>Second Semester</i>	<i>Hrs.</i>
Physics 37 (Mechanics)	4	Physics 38 (Strength of Materials)	4
Chemistry 41 (Physical Chem.)	5	Chemistry 44 (Silicate Anal.)	3
Chemistry 43 (Fuels & Combustion)	3	Petrography (& Instrumentation)	4
Ceramics 105 (Unit Processes)	4	Ceramics 106 (Glasses, Glazes, Enam.)	4
English 35	2	Civilization 22 (Eng. Indoct.)	3
	18		18

## Fourth Year

<i>First Semester</i>	<i>Hrs.</i>	<i>Second Semester</i>	<i>Hrs.</i>
Physics 31 (Heat)	3	Physics 34 (Mag. & Elec.)	3
Economics 11 (Prin. & Prob.)	3	Economics 12 (Pring. & Prob.)	3
Ceramics 107 (Testing of Prod.)	2	Ceramics 122-72 (Plant Layout)	5
Ceramics 121 (Structural Plan.)	2	Ceramics 162 (Thesis)	2
Ceramics 161 (Thesis)	2	Ceramic Elective	3
Ceramic Elective	3	Non-Technical Elective	3
Non-Technical Elective	3		
Plant Inspection	3		
	19		19

## GLASS TECHNOLOGY

Glass differs from other ceramic products in two essentials: the firing operation is carried to complete fusion, and the forming process follows the furnace treatment instead of preceding it. Glass is related to other ceramic bodies, because all glasses are made up of oxides, among which silica predominates. The glazes and enamels are glasses formed in place on the surfaces which they protect and ornament. Ceramic bodies such as pottery or porcelain owe their strength to a glassy bond which holds their crystallized minerals together.

The purpose of the curriculum in glass technology is to prepare the graduate for usefulness in the glass industry or in related fields. The student necessarily spends most of his time upon fundamental sciences, mathematics, physics, and chemistry. The application of these sciences to an industry constitutes technology.

In his specialization, the student deals with the raw materials for glass and the behavior of its constituent oxides, particularly their high-temperature chemistry. He learns how to analyze glasses, and how to design and calculate compositions for various purposes; he studies fuels and furnaces and acquires experience in glass-melting on a laboratory scale; he does not become a glassworker, but he learns the principles of the art; he finds out how glassware is annealed and gives a great deal of his time to the classroom and laboratory study of its physical properties; he becomes acquainted with the fascinating subject of colored glasses, in theory and practice.

Because clay is important in building the furnaces and containers in which glass is melted, certain courses in ceramic technology are included in this curriculum.

The department offers an opportunity for research in glass to those who are adequately prepared by college or plant experience. Glass manufacturers are invited to send their employees for further training and to establish fellowships for the study of special problems.

Students who exhibit unusual promise as they reach junior year will be given opportunity to prepare for graduate study by acquiring reading knowledge of a foreign language. Certain deviations from the prescribed courses will be allowed to suit the preference of upperclassmen who may wish to emphasize particular phases of their training.

This program leads to the degree of Bachelor of Science (B.S.).

# GLASS TECHNOLOGY CURRICULUM

## First Year

<i>First Semester</i>	<i>Hrs.</i>	<i>Second Semester</i>	<i>Hrs.</i>
Mathematics 5 (College Math.)..	5	Mathematics 6 (College Math.)..	5
Chemistry 7 (General Inorganic)	5	Chemistry 8 (Qual. Analysis)...	5
Industrial Mechanics 1 (Eng. Draw.) .....	3	Industrial Mech. 2 (Desc. Geom.)	3
English 1 (Composition) .....	3	English 2 (Composition) .....	3
Ceramics 101 or 151 (Introd.)..	1	Ceramics 102 or 152 (Introd.)..	1
Physical Education .....	1	Physical Education .....	1
Assembly .....	0	Assembly .....	0
	<hr/> 18		<hr/> 18

Summer Term of three weeks following close of second semester:

Mathematics 21 (Plane Surveying).....3 credit hours

## Second Year

<i>First Semester</i>	<i>Hrs.</i>	<i>Second Semester</i>	<i>Hrs.</i>
Mathematics 15 (Calculus) .....	4	Mathematics 16 (Calculus) .....	4
Chemistry 13 (Quant. Anal.)...	3	Chemistry 40 (Physical Chem.)..	3
Physics 11 (General Physics)...	4	Physics 12 (General Physics) ...	4
Ceramics 103 (Unit Operations)..	3	Ceramics 200 (Raw Materials)..	3
Geology (Structural) .....	3	Mineralogy (Introd. & Cryst.)...	3
Physical Education .....	1	Physical Education .....	1
Assembly .....	0	Assembly .....	0
	<hr/> 18		<hr/> 18

## Third Year

<i>First Semester</i>	<i>Hrs.</i>	<i>Second Semester</i>	<i>Hrs.</i>
Physics 37 (Mechanics) .....	4	Physics 38 (Strength of Materials)	4
Chemistry 41 (Physical Chem.)..	5	Petrography (& Instrumentation)	4
Ceramics 201 (Glass; Comp.)...	5	Ceramics 202 (Glass Properties)..	5
Ceramics 251 (Glass Analysis)...	2	Ceramics 252 (Glassmelting) ...	2
Chemistry 43 (Fuels & Comb.)..	3	Physics 32 (Light) .....	3
	<hr/> 19		<hr/> 18

## Fourth Year

<i>First Semester</i>	<i>Hrs.</i>	<i>Second Semester</i>	<i>Hrs.</i>
Physics 31 (Heat) .....	3	Non-technical Elective .....	3
Differential Equations .....	2	Statistics .....	3
Ceramics 261 (Thesis) .....	2	Ceramics 262 (Thesis) .....	2
Non-Technical Elective .....	3	Plant Inspection .....	1
Economics 11 (Prin. & Prob.)...	3	Economics 12 (Prin. & Prob.)...	3
Elective .....	5	Elective .....	5
	<hr/> 18	English 35 .....	2
			<hr/> 19

## CERAMIC TECHNOLOGY

The course in Ceramic Technology differs from the course in Ceramic Engineering in but one respect. In Ceramic Technology, subjects generally accepted as technological in character have been substituted for the engineering subjects in the engineering curriculum. There is an active demand by the ceramics industries for graduates to serve as scientists and technologists in addition to the demand for engineers. The department provides for the education of students as scientists and technologists.

As in the Ceramic Engineering course, a thorough grounding in mathematics, chemistry, and physics is given. This is followed by increased emphasis on both scientific subjects and specialized ceramic courses stressing the application of the fundamental sciences to the technical problems of the ceramic industries.

The course is identical with Ceramic Engineering for the first two years. Thereafter, certain courses regarded as fundamental are required, but certain options will be allowed. Students whose scholastic records indicate that they would succeed in graduate study may take one or two foreign languages, additional chemistry, and more mathematics. Those who show a decided preference for particular branches of ceramics will be allowed more intensive specialization in those subjects.

This program leads to the degree of Bachelor of Science (B.S.).

# CERAMIC TECHNOLOGY CURRICULUM

## First Year

<i>First Semester</i>	<i>Hrs.</i>	<i>Second Semester</i>	<i>Hrs.</i>
Mathematics 5 (College Math.)..	5	Mathematics 6 (College Math.)..	5
Chemistry 7 (General Inorganic)	5	Chemistry 8 (Qual. Analysis)...	5
Industrial Mechanics 1 (Eng. Draw.) .....	3	Industrial Mechanics 2 (Desc. Geom.) .....	3
English 1 (Composition) .....	3	English 2 (Composition) .....	3
Ceramics 101 or 151 (Introd.)..	1	Ceramics 102 or 152 (Introd.)..	1
Physical Education .....	1	Physical Education .....	1
Assembly .....	0	Assembly .....	0
	<hr/> 18		<hr/> 18

Summer Term of three weeks following close of second semester:

Mathematics 21 (Plane Surveying) ..... 3 credit hours

## Second Year

<i>First Semester</i>	<i>Hrs.</i>	<i>Second Semester</i>	<i>Hrs.</i>
Mathematics 15 (Calculus) .....	4	Mathematics 16 (Calculus) .....	4
Chemistry 13 (Quant. Anal.)....	3	Chemistry 40 (Physical Chem.)..	3
Physics 11 (General Physics)....	4	Physics 12 (General Physics)....	4
Geology (Structural) .....	3	Mineralogy (Introd. & Cryst.)...	3
Ceramics 103 (Unit Operations)..	3	Ceramics 104 (Raw Materials) ..	4
Physical Education .....	1	Physical Education .....	1
Assembly .....	0	Assembly .....	0
	<hr/> 18		<hr/> 19

## Third Year

<i>First Semester</i>	<i>Hrs.</i>	<i>Second Semester</i>	<i>Hrs.</i>
Chemistry 41 (Physical Chem.)..	5	Chemistry 44 (Silicate Anal.)...	3
Chemistry 43 (Fuels & Comb.)..	3	Petrography (& Instrumentation)	4
Ceramics 105 (Unit Processes) ..	4	Ceramics 106 (Glasses, Glazes, Enam.) .....	4
Mathematics 101 (Diff. Equat.)..	2	Mathematics 102 (Diff. Equat.)..	2
Technical Elective .....	3	Technical Elective .....	2
English 35 .....	2	Civilization 22 (Eng. Indoct.)...	3
	<hr/> 19		<hr/> 18

## Fourth Year

<i>First Semester</i>	<i>Hrs.</i>	<i>Second Semester</i>	<i>Hrs.</i>
Physics 31 (Heat) .....	3	Physics 34 (Mag. & Elec.) .....	3
Economics 11 (Prin. & Prob.)...	3	Economics 12 (Prin. & Prob.)...	3
Ceramics 107 (Testing of Prod.)..	2	Ceramics 162 (Thesis) .....	2
Ceramics 161 (Thesis) .....	2	Ceramics 124 (Adv. Cer. Tech.)..	2
Ceramics 123 (Adv. Cer. Tech.)..	2	Non-Technical Elective .....	3
Ceramics 125 (Thermo. Min.)...	1	Technical Elective .....	5
Advanced Petrography .....	2		
Non-Technical Elective .....	3		
Plant Inspection .....	1		
	<hr/> 19		<hr/> 18

# DESIGN

The department provides specialized professional training in the design of ceramic products. The basis of the curriculum is the broad study of creative design, expressed in three-dimensional materials and in graphic media. A parallel study of technical subjects and practical experience with methods of production provide a means of relating creative ideas to modern demands. Studies in the humanities and in the history and philosophy of design supply a necessary part of the student's educational background.

For the first two years, the student concentrates on the fundamentals of three-dimensional and graphic design, color, free hand and instrumental drawing, and modeling.

Many materials and modes of expression are employed in solving creative problems in form and space. The study of design is approached from an abstract basis, because of its special relevance to the design of three-dimensional objects.

In his junior year, the student enters the shops and laboratories where his study of design expands to include problems of function and the physical structure and behavior of materials. He experiments with many processes and their adaptation to design solutions. Experience with a wide variety of ceramic colors, textures, and compositions of clay and glasses increases his range of expression. The equipment of a modern pottery is placed at his disposal so that he may test the value of his designs by expressing them in a finished product. Contacts with manufacturing and retail outlets provide talented students with an opportunity further to check the practicability of their ideas in actual production and sales. At intervals, the scheduled courses are supplemented by trips to museums, exhibitions, and industrial plants.

The list of courses prescribed for the first two years must be taken by all students. However, a pattern of elective courses during the third and fourth years allows the advanced student to plan an individual program of study according to his interests and aptitude.

During the junior and senior years, students must complete a minimum of 47 credit hours of courses from among those listed: pp. 47 to 50. The remaining credit hours required for graduation may be taken outside the major field, or additional departmental courses may be elected.

Qualified junior and senior students who wish to prepare for teaching ceramics or art may elect appropriate courses in education. Others may choose electives from the following areas: English, speech and dramatics, music, history, mathematics, religion, economics, painting, design, sculpture and ceramics.

The schedules of junior and senior students are subject to approval by the Chairman of the Department.

Because of present limitation of facilities, enrollment of freshman students is limited to twenty-five. Preference is given to those students

whose high-school marks rank them in the upper third of their class and/or who show exceptional adaptation for creative work.

Students who receive failing marks in liberal arts courses, chemistry, or drafting, must satisfactorily complete such work before entering school the following year. Sophomore students must acquire a cumulative index of 1.00 in departmental courses, in order to be eligible for entrance in the junior year.

The College reserves the right to retain ware, drawings, and designs, made by students.

This program leads to the degree of Bachelor of Fine Arts (B.F.A.).

## CERAMIC DESIGN CURRICULUM

### First Year

<i>First Semester</i>	<i>Hrs.</i>	<i>Second Semester</i>	<i>Hrs.</i>
Ceramics 301 (Art History).....	1	Ceramics 302 (Art History).....	1
Ceramics 321 (Drawing).....	3	Ceramics 322 (Drawing).....	3
Ceramics 323 (Design).....	4	Ceramics 324 (Design).....	4
Ceramics 323A (Design).....	2	Ceramics 326 (Sculpture).....	1
Ceramics 325 (Sculpture).....	1	Ceramics 324A (Design).....	2
Civilization 1 (History-English) ..	5	Civilization 11 (History-English) ..	5
Mechanical Drawing.....	2	Mechanical Drawing.....	2
Physical Education.....	1	Physical Education.....	1
Assembly.....	0	Assembly.....	0
	19		19

### Second Year

<i>First Semester</i>	<i>Hrs.</i>	<i>Second Semester</i>	<i>Hrs.</i>
Ceramics 327 (Drawing-Painting) ..	2	Ceramics 328 (Drawing-Painting) ..	2
Ceramics 329A (Design).....	3	Ceramics 330A (Design).....	3
Ceramics 329 (Design).....	2	Ceramics 330 (Design).....	2
Ceramics 331 (Sculpture).....	3	Ceramics 332 (Sculpture).....	3
Ceramics 303 (Art History).....	1	Ceramics 304 (Art History).....	1
Chemistry 305 (Ceramic Chemistry).....	3	Ceramics 306 (Cer. Materials) ..	3
Psychology (General).....	3	Psychology (Educational).....	3
Physical Education.....	1	Physical Education.....	1
English Composition.....	2	English Composition.....	2
Assembly.....	0	Assembly.....	0
	20		20

### Third Year

<i>First Semester</i>	<i>Hrs.</i>	<i>Second Semester</i>	<i>Hrs.</i>
Ceramics 333 (Design).....	2	Ceramics 334 (Design).....	2
Ceramics 335 (Industrial Design) ..	4	Ceramics 336 (Industrial Design) ..	4
Ceramics 335A (Ceramic Design) ..	2	Ceramics 336A (Ceramic Design) ..	2
Ceramics 337 (Production).....	5	Ceramics 338 (Production).....	5
Ceramics 337A (Sculpture).....	2	Ceramics 338A (Sculpture).....	2
Sociology.....	3	Sociology.....	3
Ceramics 307 (Materials).....	3	Ceramics 308 (Ceramic Color) ..	2
		Ceramics 304B (Observation & Practice).....	3
	21		23

### Fourth Year

<i>First Semester</i>	<i>Hrs.</i>	<i>Second Semester</i>	<i>Hrs.</i>
Ceramics 309 (Equipment & Plant Design).....	2	Ceramics 310 (Equipment & Plant Design).....	2
Ceramics 341 (Design).....	2	Ceramics 342 (Design).....	2
Ceramics 341A (Ceramic Design) ..	2	Ceramics 342A (Ceramic Design) ..	2
Ceramics 339 (Drawing-Design) ..	2	Ceramics 340 (Drawing-Design) ..	2
Ceramics 343 (Design & Product) ..	4	Ceramics 344 (Design & Product) ..	4
Ceramics 343A (Sculpture).....	2	Ceramics 344A (Sculpture).....	2
Elective.....	6	Elective.....	6
	20	Ceramics 304A (Art Education) ..	3
			23



## DEPARTMENT OF RESEARCH

The Department of Research, also known as the Ceramic Experiment Station, is the agency by which the New York State College of Ceramics renders service to the producers and users of ceramic products in the State of New York. The need for research in the field of ceramics has become increasingly apparent in the last half-century. The conversion of the industry from an art to a science can be achieved only through research and its proper application. The gathering of fundamental information and the application of known scientific principles to ceramic problems is one of the main functions of the Department of Research. The research very often produces new methods and products more useful to man; hence, the public benefits by better and more serviceable products; the manufacturer gets the benefit of new products, new markets, and more efficient operation; and labor benefits by more employment and better salaries.

The demand for ceramic research in the post-war period is greater than ever before. The value of research was made evident to private industry, the Armed Forces, and the Federal and State Governments by war-time developments. Most of these developments were the result of application of fundamental information discovered in prewar years. These facts, which are so necessary for developmental research, require replenishment. The staff of the department is actively engaged in fundamental studies designed to provide such information.

The Research Department now conducts programs of research for several government agencies. These include the Air Force, Office of Naval Research, and the Office of Air Research. The present search for materials capable of withstanding the very high temperatures in certain power-plant applications is the stimulus behind these programs.

A study of the mineral resources of New York State is now in progress, in cooperation with the Science Service Division of the New York State Museum and the New York State Department of Commerce. This will make available to old and new industries information on the properties of ceramic materials available in the State. A survey of the clay and shale resources of the State has been completed. In connection with this work, over 450 samples were collected, and data were obtained regarding their chemical and physical properties. The program has been expanded, and a survey of the limestone resources of the State is now in progress.

A considerable amount of industrial research is being conducted under the supervision of the Department. The investment by industry of large sums for special equipment is avoided by supporting cooperative research in this Department and making use of its excellent facilities. Several of the industries are maintaining Fellowships on problems peculiar to their industries. Fellowships are often maintained by an association of manufacturers and render service to a whole group in-

stead of to an individual. Duplication of research is thereby avoided, and important economies are effected.

The State is considering a request for a new building and additional facilities to make possible increased fundamental and applied research as well as pilot-plant testing of developments.

While space does not permit a complete picture of current activities, mention of some of the more recent studies may give a clearer conception of the work of the Research Department: (1) jet-engine refractories; (2) the mineral composition and properties of New York clays and shales; (3) the physical and chemical properties of New York State limestones; (4) a study of surface-tension effects in glass; (5) the kinetics of Portland Cement hydration; (6) improved compositions and processes for refractories and abrasives; (7) new methods of manufacturing building brick; (8) Metal-ceramic diffusion studies using radioactive tracers; (9) differential thermal analysis of clay minerals; (10) fundamental factors influencing efflorescence of clay products; (11) testing and evaluation of submitted samples; (12) utilization of fly-ash.

Practical results on such problems are achieved by a competent staff of workers. Preliminary tests are carried out in the laboratory; if these are promising, service tests are conducted to determine the practical value of the development. Through the cooperation of the Ceramic Association of New York, whose Board of Directors acts as an advisory committee, the Department gets the advice of the leading ceramic industrialists of the State and the active cooperation of their companies.

The Research Department also has a part in the educational program of the College. Members of its staff supervise part of the undergraduate and graduate research work and are available for consultation on any problem which may require their assistance. Staff members offer courses in specialized fields at graduate levels.

### INDUSTRIAL FELLOWS (Assistants)

Various ceramic industries, groups of industries, organizations and Federal agencies sponsor research fellowships at the College. Some of these fellowships are held by seniors and graduate students on a part-time basis, whereas others are held by full-time research fellows. Salaries are commensurate with the experience and ability of the fellow and with the time that is devoted to the project on which he is employed. Full-time industrial fellows and research associates are permitted to take a maximum of eight semester-hours of courses per year.

## DESCRIPTION OF COURSES

### CERAMIC ENGINEERING

#### 101-102. A BRIEF HISTORY OF THE CERAMIC INDUSTRIES.

One lecture per week.  
One credit hour, each semester.

#### 103. UNIT OPERATIONS.

The engineering aspects of typical and fundamental operations in each of the ceramic industries.  
Three lectures per week, first semester.  
Three credit hours.

#### 104. RAW MATERIALS.

The raw materials for all ceramic industries are considered: winning, refining, processing, properties, including behavior in firing and use in manufacturing; calculations.  
Three lectures and one laboratory period per week, second semester.  
Four credit hours.

#### 105. UNIT PROCESSES.

The fundamental considerations of plastic, slip-casting, and dry-pressing processes; drying and firing; effects of grain size and particle distribution; application to unit operations.  
Three lectures and one laboratory period per week, first semester.  
Four credit hours.

#### 106. GLAZES, GLASSES, AND ENAMELS.

Fundamental studies of the glassy state, followed by applications to the industries producing glazed ceramic ware, glassware, and enameled ware. Colors, compositions; methods of calculation.  
Three lectures and one laboratory period per week, second semester.  
Four credit hours.

#### 107. TESTING CERAMIC PRODUCTS.

Lectures, laboratory work, and demonstrations on instruments and methods, and practice in testing commercial ceramic products of all sorts.  
First semester.  
Two credit hours.

#### \*108. STRUCTURAL CLAY PRODUCTS.

Specialization in the technology and the engineering aspects of the structural-clay-products industry.  
Two lectures per week, second semester.  
Two credit hours.

#### \*109. WHITEWARES.

A study of bodies, glazes and colors. A specialized course in the technology and engineering aspects of the industry in which complex whiteware mixtures and glazes are employed.  
Three lectures per week, first semester.  
Three credit hours. Prerequisite, Ceramics 106.

#### \*114. REFRACTORIES.

A study of the fundamental technology of all kinds of refractories and the engineering aspects of their production and use.  
Three lectures per week, second semester.  
Three credit hours. Prerequisite, Ceramics 104.

#### \*115. LIME, GYPSUM AND CEMENT.

The properties, manufacture, testing, and uses of cementing materials.  
Three lectures per week, first semester.  
Three credit hours. Prerequisite, Ceramics 104.

#### \*118. ENAMELS.

The technology of the application of vitreous or porcelain enamels to metals.  
Two lectures per week, second semester.  
Two credit hours. Prerequisite, Ceramics 104.

#### \*119-120.

Seminar in Ceramic Engineering or Technology, for graduates. Hours to be arranged.

#### 121. ENGINEERING I.

The engineering features of structural planning and design, plant layout and ceramic-plant design.  
Two lectures per week, first semester.  
Two credit hours. Prerequisite, Ceramics 106 and Physics 37 and 38.

#### 122. ENGINEERING II.

The engineering features of structures and of ceramics-equipment design, particularly as applied to the drying and firing of ceramic ware.  
Two lectures per week, second semester.  
Two credit hours.

#### \*123-124. ADVANCED CERAMIC TECHNOLOGY.

The study of solid-state reactions, ion exchange, unequilibrium crystallizations, etc., and their ceramic implications.  
Two lectures per week, each semester.  
Two credit hours each semester.

#### \*125. THERMOCHEMICAL MINERALOGY.

Establishment and interpretation of phase equilibrium diagrams to predict quantitatively the formation of ceramic minerals at high temperatures.  
Two lectures per week, first semester.  
Two credit hours. Prerequisite, Chemistry 40.

#### \*126. ADVANCED CERAMIC ENGINEERING.

A study of the recent developments in furnaces, kilns, and equipment for ceramic plants.  
Two lectures per week, second semester.  
Two credit hours.

#### 151-152. A BRIEF INTRODUCTION TO THE METHODS FOR PRODUCING CLAYWARE.

Particular attention is given to the use of pottery plaster, the steps in mold making, and the jiggering and casting processes. Use of equipment for common ceramic operations is demonstrated.  
One laboratory period each week, first or second semester.  
One credit hour.

#### \*159. WHITEWARE LABORATORY.

Laboratory studies to demonstrate the properties of whiteware raw materials, the preparation and testing of typical whiteware bodies, glazes and colors. Two laboratory periods per week, first semester. Associated with Ceramics 109.  
Two credit hours.

## 161-162. THESIS.

Original research on some problem decided upon in conference with the instructor.

Two laboratory periods per week; each semester.

Two credit hours, each semester.

## \*168. ENAMEL LABORATORY.

Two laboratory periods per week, second semester. To be taken with Ceramics 118.

Two credit hours.

## 172. ENGINEERING DESIGN.

Design practice in which the structural engineering details of plant design, plant layout and plant equipment, including kilns and driers, are carried out.

Three laboratory periods per week, second semester. Associated with Ceramics 122.

Three credit hours.

\* For Elective or Graduate Study.

## GLASS TECHNOLOGY

### 200. RAW MATERIALS.

The chemistry of the glassmaking oxides. A study of the methods of production of the minerals and chemicals used in glassmaking and of the chemical reactions and properties; methods of testing purity, chemical composition, and functions in glassmelting.

Three lectures per week.

Three credit hours.

### 201-251.

Simple glasses are melted, and the melting process is studied in relation to refractories, containers, temperatures, batch compositions, and fining agents. Text and references to the literature of glass covering glass composition, furnace design and operation, tank blocks and parts, and fundamental chemistry of glassmaking and calculations, working processes, annealing, finishing, defects and testing of commercial glassware.

Five lectures and two laboratory periods per week, first semester. Seven credit hours. Prerequisites—two years college work in science or equivalent experience.

### 202-252. THE PHYSICS OF GLASS.

The effects of common and unusual colorants, the influence of batch and glass compositions, the study of temperatures and furnace atmospheres in relation to colors, the mathematics of transmission of light through glass, the specific physical and optical properties of glass, constitution theory, and historical development.

Five lectures and two laboratory periods per week, second semester.

Seven credit hours.

### \*203. PROPERTIES OF GLASS.

Elective. Primarily for graduate students. Text, lectures, assigned reading, individual reports on research papers. The physical chemical and optical properties of glass are intensively studied.

Three lectures per week, first semester.

Three credit hours.

### \*204. GLASSMELTING UNITS.

Elective. Primarily for graduate students. Studies on the design, construction, and operation of glass furnaces.

Three lectures per week, second semester.

Three credit hours.

### \*205. SURVEY OF GLASS TECHNOLOGY.

A lecture course offered for the benefit of students in General Ceramics or other departments, covering the subject in a summary manner. Three lectures per week, first semester.

Three credit hours.

### \*206. STRUCTURE OF GLASS.

Elective. Primarily for graduate students. A lecture course dealing with the coordination and linkage of cations and oxygen in the glass-forming, glass-modifying, and intermediate oxides, from the viewpoint of crystal chemistry.

Two lectures per week, second semester.

Two credit hours.

### 261-262. GLASS THESIS.

Laboratory study of a problem selected in conference with the department head. Review of literature. Two laboratory periods per week, each semester.

Two credit hours, each semester.

\* For Elective or Graduate Study.

## DESIGN

### 301-302; 303-304. HISTORY OF DESIGN.

Lecture and individual study of reference material. An examination of various methods and styles of creative expression, as influenced by changing patterns of social and physical environment. Architecture, sculpture, furnishings, tools, and graphic expression.

One lecture period per week during the first and second year.

One credit hour each semester.

### 304A. ART EDUCATION.

Methods and philosophy of Art Education.

Three credit hours.

Lecture and laboratory.

### 304B. ART EDUCATION.

Observation and practice teaching.

Three credit hours.

### \*306. CERAMIC RAW MATERIALS.

This is a special course in ceramics which deals specifically with the chemical nature of ceramic raw materials, clays and glasses.

Chemistry 305 is a prerequisite.

Two lecture periods and one laboratory period each week.

Three credit hours each semester.

### \*307. GLAZE CALCULATION AND DEVELOPMENT.

Two lecture periods and one laboratory period per week.

Three credit hours.

### \*308. CERAMIC COLORS AND TEXTURES.

An advanced course in the development of ceramic colors and textures.

Elective.

Three credit hours.

**\*309-310. EQUIPMENT AND MATERIALS.**

Refractory and insulating materials and their uses in firing ceramic wares. Kiln construction, firing reactions, temperature measurement and control. Ceramic production equipment and plant design.

Two lecture periods per week, first semester.

Two credit hours.

Individual problems in the laboratory development of ceramic materials. Elective.

Two laboratory periods per week.

Two credit hours.

**321-322. DRAWING.**

Free-hand drawing and design in various media from still life, landscape, the figure and memory.

Introductory work in color.

Three and one-half laboratory periods per week.

Three credit hours each semester.

**323A-324A. DESIGN I.**

Exercises in creative articulation of materials.

Two laboratory periods each week.

Two credit hours each semester.

**323-324. DESIGN II.**

Graphic interpretation, employing the language of lines, planes, values, color and texture, and their specific uses in relation to design problems; problems in perspective delineation.

Five laboratory periods per week.

Four credit hours each semester.

**325-326. SCULPTURE I.**

Elements of three-dimensional composition using clay and other media. Organization of forms, space and volumes, as the basis of creative sculpture. Natural and geometric forms used as the basis for progressive exercises.

One and one-half laboratory periods per week.

One hour credit each semester.

**327-328. PAINTING AND DRAWING I.**

Plastic drawing, spatial organization, from life, still life, and landscape. Various media used.

Two laboratory periods per week.

Two credit hours each semester.

**329-330. GRAPHIC INTERPRETATION.**

A continuation of course 324.

Two laboratory periods per week.

Two credit hours each semester.

**329A-330A. THREE-DIMENSIONAL DESIGN.**

The development of special knowledge and skills necessary to the solution of design problems. Creative organization of varied materials. The study of sections, profiles and models in their roles as tools of design expression.

Three laboratory periods per week.

Three credit hours each semester.

**331-332. SCULPTURE II.**

A continuation of Course 325-326.

Three laboratory periods per week.

Three credit hours each semester.

**333-334. PAINTING AND DRAWING II.**

Creative organization of pattern, color, texture and form in relation to a two-dimensional surface. Various media used.

Two laboratory periods per week.

Two credit hours each semester.

**335-336. INDUSTRIAL DESIGN I.**

Basic problems in design, stressing the influence of function, materials, production, social and economic factors. Selected problems are carried into experimental production in allied shop and laboratory periods.

Three and one-half laboratory periods per week.

Four credit hours each semester.

**\*335A-336A. INDUSTRIAL DESIGN II.**

A design course with graphic problems related to ceramic products.

Two laboratory periods per week.

Two credit hours each semester.

**\*337-338. DESIGN AND PRODUCTION I.**

Lecture and laboratory. A general course in the design and production of ceramic wares. Creative problems in the adaptation of abstract form to problems of function and production. Use of clays, glazes, and color. Practice in methods of forming in clay and plaster. Mold and model making for wheel-formed and sculptured models. Kiln operation.

Five and one-half laboratory periods per week.

Five credit hours each semester.

**\*337A-338A. SCULPTURE III.**

Sculptural problems related to Course 337-338.

Two laboratory periods per week.

Two credit hours each semester.

**\*339-340. PAINTING AND DRAWING III.**

A continuation of Course 333-334.

Two laboratory periods per week.

Two credit hours each semester.

**\*341-342. DESIGN THEORY.**

An advanced course in design problems.

Two laboratory periods per week.

Two credit hours each semester.

**\*343-344. DESIGN AND PRODUCTION II.**

A pre-professional course in the solution of design problems. Individual problems in ceramics, from drawing to final product, and designed for various methods of making and types of market, are planned and produced by each student.

Five laboratory periods per week.

Four credit hours each semester.

**\*343A-344A. SCULPTURE IV.**

Work in this course is coordinated with that given in 343-344.

Two laboratory periods each week.

Two credit hours each semester.

**\*343B-344B. DESIGN AND PRODUCTION III.**

The planning and graphic presentation of design problems for various types of production. Solutions planned in this course are produced in final form in connection with course 343-344.

Two laboratory periods each week.

Two credit hours each semester.

## GRADUATE COURSES

For graduate students, only. Credit hours and schedule to be arranged.

Graduate credit may be allowed for additional hours in those undergraduate courses marked with an asterisk. Superior performance must be maintained and only grades above C will be credited for graduate work.

### 363-364. SCULPTURE AND THREE-DIMENSIONAL DESIGN.

### 367-368. PAINTING, DESIGN, DRAWING.

### 369-370. LABORATORY PROBLEMS.

Problems in the design and production of ceramic wares for various types of uses, methods of production, and market requirements. Problems exploring the creative uses of earthy materials for design purposes.

Work on graduate thesis is included as a part of this course.

### 369A-370A. LIBRARY RESEARCH.

Assigned reading, library research and study.

Each graduate student follows an individual program in this course.

## GRADUATE THESIS IN DESIGN

Work on an approved thesis is begun after the candidate has been admitted to full graduate study. The thesis is a problem or an integrated series of problems in creative design. The subject matter may be chosen to accord with the student's individual objective. In general this would come under one of two broad fields of creative design—design for various uses, materials, and types of manufacture, or design as related to the problems of education.

An average thesis requires about 14 credit hours out of the total graduate requirements of 36 hours. A general understanding of the social and economic problems of the designer's profession is expected of all students. Professional skill in design for materials and a detailed knowledge of production problems are requirements.

The final thesis is submitted in writing, illustrated by photographs, diagrams, plans or drawings, and by examples of completed work.

A brief internship in a ceramic plant or other appropriate professional outlet may be required in cases where it is indicated by the objective and scholastic standing of the student.

The completion of a thesis will require a variety of skills including:

1. Skill and experience in the creative use of colors, textures and processes in relation to the material; and understanding of the technical problems involved.
2. Various methods and media of design presentation and expression.
3. The making of suitable models and molds; the planning of "jigs," tools, and other production aids.
4. Experience with various types of small- and large-scale production, and their appropriate design interpretations.

## CHEMISTRY

### 7-8. GENERAL INORGANIC CHEMISTRY.

A systematic study of fundamental principles, theories, and calculations. High-school chemistry is a desirable foundation for taking this course. Two lectures, one recitation and two laboratory periods per week.

Five credit hours each semester.

#### *Qualitative Analysis.*

Qualitative analysis of metals and inorganic compounds and the chemical principles involved. A brief, intensive course presented as the latter portion of Chemistry 8.

Laboratory fee \$15.00 each semester. Breakage deposit \$15.00.

### 13. QUANTITATIVE ANALYSIS.

Volumetric and gravimetric analysis. One lecture, one quiz, two laboratory periods per week, first semester.

Three credit hours. Prerequisite, Chemistry 8.

Laboratory fee \$15.00. Breakage deposit \$15.00.

### 13A. CALCULATIONS IN QUANTITATIVE ANALYSIS.

Methods and practice in various types of calculations arising from analytical procedures.

One hour, first semester.

### 40. STATES OF MATTER.

An introduction to the principles of physical chemistry most useful in ceramics. Studies on gases, liquids, and solids; vitreous and crystalline conditions; the phase rule, thermochemistry; plasticity, viscosity, and other properties of matter.

Three lectures per week, second semester.

Three credit hours. Prerequisite, Chemistry 8.

### 41. PHYSICAL CHEMISTRY.

A continuation of Chemistry 40. Theoretical chemistry. Prerequisites: Chemistry 13 and 40; Calculus.

Five class periods per week, first semester.

Five credit hours.

### 43. FUELS AND COMBUSTION.

Fuels, principles of combustion, and heat balance. Two lectures and one laboratory per week, first semester.

Three credit hours. Prerequisite, Chemistry 13.

Laboratory fee \$15.00. Breakage deposit \$15.00.

### 44. SILICATE ANALYSIS.

The analysis of silicate rocks, clays, and ceramic materials. One lecture and two laboratory periods per week, second semester.

Laboratory fee \$15.00. Breakage deposit \$15.00.

### 46. FUNDAMENTALS OF ORGANIC CHEMISTRY.

A summary course, emphasizing as much as possible, applications of carbon compounds in ceramics. Elective, for undergraduate credit.

Two lectures per week, second semester.

Two credit hours.

### \*70. CHEMISTRY OF THE COLLOIDAL STATE.

Two lectures per week, second semester; two credit hours.

\* For Elective or Graduate Study.

**\*77. ELEMENTARY SPECTROSCOPY.**

Emission and absorption spectroscopy in chemical analysis. Construction and use of spectrographic equipment. Spectrum analysis by arc or spark methods of excitation.

Qualitative and quantitative analysis.

One lecture per week, first semester. One credit hour.

Admission by special permission.

**\*78A. SPECTROSCOPY LABORATORY.**

Qualitative and quantitative analysis of inorganic salts and ceramic materials for ceramic engineering students.

One 3-hour laboratory period per week, second semester.

Prerequisite, Chemistry 77. One credit hour.

Laboratory fee \$5.00.

**\*78B. SPECTROSCOPY LABORATORY.**

Qualitative analysis of ceramic materials. Absorption spectroscopy. Glass technology students and chemistry majors.

One 3-hour laboratory period per week, second semester.

Prerequisite, Chemistry 77. One credit hour.

Laboratory fee \$5.00.

**\*79. ADVANCED SPECTROCHEMISTRY.**

Research applications. Analytical interpretation. Control and experimental.

One hour lecture and six hours laboratory per week. Three credit hours.

For graduate students by special permission. Offered both semesters.

Laboratory fee \$10.00.

**\*128. CRYSTAL CHEMISTRY.**

The principles of crystal chemistry; the nature of the bond; the sizes of atoms and ions, and the organization of these units into solid bodies. Greater emphasis is placed on the structure of silicate compounds, both crystalline and glassy, than on other compounds or on metals.

Two lectures per week, second semester.

Two credit hours. Prerequisite, Applied X-rays.

**\*129-130. THERMODYNAMICS.**

An introduction to the study of energy and heat, based on the first and second laws of thermodynamics.

Two lectures per week, each semester.

Two credit hours, each semester.

**305. ELEMENTARY CHEMISTRY.**

This is a special course in ceramic chemistry offered to Ceramic Design students in which the fundamentals necessary to an understanding of glazes and bodies are presented.

Two lecture periods and one laboratory period each week.

Three hours credit.

Prerequisite for 306.

\* For Elective or Graduate Study.

## GEOLOGY AND MINERALOGY

### MINERALOGY I.

This course includes an introduction to crystallography and the study of minerals and their identification by chemical and physical tests. Two lectures and one laboratory period per week, second semester.

Three credit hours.

### GEOLOGY 5.

This is a course in general geology with special reference to the materials of ceramic importance.

Three lectures per week, first semester.

Three credit hours.

### PETROGRAPHY I.

Summary of the nature and properties of electromagnetic radiations including light and X-rays in refraction, diffraction and detection; the use of the polarizing microscope in the study of ceramic raw materials and products, the measurement of particle size, stress analysis, photomicrography, and the identification of natural and artificial minerals; the use of X-rays in radiographic and microradiographic inspection; X-ray diffraction in the identification of mineral mixtures and determination of particle size; spectrographic methods for the qualitative and quantitative analysis of inorganic materials by emission and absorption.

Three lectures and one laboratory period per week, second semester.

Four credit hours.

### \*PETROGRAPHY II.

Advanced work in the use of the petrographic microscope and accessories in the examination and photography of ceramic raw materials and products.

Two lecture periods per week, first semester.

Two credit hours. Prerequisite, Petrography I.

### \*APPLIED X-RAYS.

The study of X-ray diffraction and its application to ceramic materials.

Two lecture periods per week, first semester.

Two credit hours.

### \*APPLIED X-RAY LABORATORY.

One laboratory period per week, first semester.

One credit hour.

## MATHEMATICS

### 5-6. FRESHMAN MATHEMATICS.

A unified course including topics from college algebra, trigonometry, and analytic geometry. Intended primarily for freshmen of the College of Ceramics.

Five credit hours each semester.

### 15-16. CALCULUS.

The processes of differentiation and integration and their applications. Prerequisites, Mathematics 5-6 or 11-2. Permission may be given to exceptional students to take courses 12 and 16 simultaneously.

Four credit hours each semester.

\* For Elective or Graduate Study.

## 21S. PLANE SURVEYING.

Primarily for engineering students in the College of Ceramics. A student must do satisfactory work in both the field and classroom in order to receive credit. Offered for three weeks each summer, beginning immediately after the close of the regular school year. Prerequisites, Mathematics 4 and Engineering Drawing 1-2 or their equivalent. Instrument fee \$10.00.

## 33C.II ELEMENTARY STATISTICS.

An introduction to the statistical methods of the natural and social sciences. This course will be repeated the second semester. The first semester is intended primarily for students in the College of Liberal Arts, while the second semester is primarily for students in Glass Technology. Prerequisites, Mathematics 3 or 5, or their equivalent. Laboratory fee \$3.00.

Three credit hours.

## 65-66. MATHEMATICAL STATISTICS. (1949-50)

A study of modern techniques in mathematical statistics, frequency distributions, correlation, analysis of variance, small sample theory, and the design of experiments. Prerequisite, Mathematics 15-16. Laboratory fee \$2.00 per semester.

Three credit hours each semester.

## \*101-102. DIFFERENTIAL EQUATIONS.

The solution of first order and first and second degree differential equations and general linear differential equations, with applications to the sciences. Prerequisite, Mathematics 15-16.

Two credit hours each semester.

## PHYSICS

### 11-12. GENERAL PHYSICS.

This course covers the whole field of physics with emphasis on problem solving and engineering applications. Prerequisites, high school trigonometry, or registration in freshman mathematics. Three lectures and one laboratory. Laboratory fee \$10.00 per semester.

Four credit hours each semester.

### 31. HEAT.

The more important phenomena of heat, temperature measurement, and the elements of thermodynamics are included in this course. Prerequisites, Physics 11-12 and Mathematics 15-16. Two lectures and one laboratory. Laboratory fee \$10.00.

Three credit hours.

### 32. OPTICS.

The principles of geometrical and physical optics. Prerequisites, Physics 11-12 and Mathematics 15-16. Two lectures and one laboratory. Laboratory fee \$10.00.

Three credit hours.

### 34. MAGNETISM AND ELECTRICITY.

This course covers the phenomena of magnetism and electricity and the theoretical explanation. Prerequisites, Physics 11-12 and Mathematics 15-16. Three lectures.

Three credit hours.

\* For Elective or Graduate Study.

## 36. ELECTRONICS LABORATORY.

This course is similar to Physics 35 except that emphasis is placed on electronic equipment and its applications in research and industry. It is not intended to be a course in communications engineering. Prerequisites, Physics 11-12, Mathematics 15-16, and permission of the instructor. One lecture and one or two laboratory sessions. Laboratory fee \$10.00 each laboratory session.

Two or three credit hours.

## 37-38. MECHANICS AND STRENGTH OF MATERIALS.

A study of statics and kinetics, with emphasis on the determination of forces acting on bodies in equilibrium. Both analytic and graphic methods are used. Other topics included are center of gravity, moment of inertia, work, energy, and power. A large portion of the second semester is devoted to the study of strength of materials.

Four hours each semester. Prerequisites, Mathematics 15-16 and Physics 11-12.

## \*107. INTRODUCTORY RADIOACTIVITY AND NUCLEAR PHYSICS.

A lecture-demonstration course dealing with radioactivity and properties of radioactive emanations; nuclear reactions, modern detection methods, properties of nuclear particles, tracer applications, and health physics. Three lectures per week, first semester.

Three credit hours.

Graduate credit.

## \*111. SOLID-STATE PHYSICS.

Application of fundamental principles to a study of the electrical and magnetic properties of matter. Theory of dielectrics from an atomic point of view. Behavior of induced and permanent dipoles in electric fields. Dipole, atomic and electronic polarization. Dependence of dielectric constant and index of refraction on temperature and frequency. Ferroelectricity. Dia-, para- and ferromagnetism. Three lectures per week, first semester.

Three credit hours. Prerequisite: Physics 34.

Graduate credit only.

## \*112. SOLID-STATE PHYSICS (Continued).

A physical approach to the study of the nature of bonding in solids, from both the classical and wave-mechanical points of view. Theory of electrical conductivity and specific heat. Insulators, semiconductors and conductors. Three lectures per week, second semester.

Three credit hours. Prerequisite: Physics 34.

Graduate Credit only.

\* For Elective or Graduate Study.

## CIVILIZATION

### 1-2. CIVILIZATION—OUR CULTURAL HERITAGE.

This course is an integration of the history of western civilization with the traditional freshman composition. Through concentration on a relatively few periods whose culture is judged to be of greatest significance, the course introduces the student to the basic patterns of social organization, intellectual activity, and artistic achievement. These materials form the basis of the work in composition, which meets the same quantitative and qualitative standards that are maintained in the traditional course in Freshman English. The course is conducted by a permanent teaching panel with occasional lectures given by representatives from the various departments of the college. Required of all freshmen in Design.

Five credit hours, each semester.



## 22. ENGINEERING INDOCTRINATION.

The broad aspects of the relationship of the engineer to society and his responsibility as a professional man and a citizen are treated by the coordinator of the course, assisted by instructors from the Liberal Arts College and by leading members of the engineering profession. The course also emphasizes engineering ethics, engineering methods, safety and industrial hygiene.

Three lectures per week, second semester.  
Three credit hours.

## ECONOMICS

### 11-12. PRINCIPLES AND PROBLEMS.

A study of modern economic society and the functioning of the price-system. The technique of economic analysis. The application of economic principles and methods of analysis to present-day economic problems.

Three lectures per week.  
Three credit hours each semester.

## EDUCATION

### 41. EDUCATION IN A DEMOCRACY.

A course designed as general education for the lay student, as well as a first course in Education for the prospective teacher. A study of the function of education in society, and, in particular, the organization of the American schools system, the influences affecting our schools, and present practices and trends.

Two credit hours.

### 42. FOUNDATIONS OF THE PHILOSOPHY OF EDUCATION.

The application of philosophy of education to the processes, the principles, the objectives, the methods, and the organization of the school system in a democracy.

Two credit hours.

### 51-52. SECONDARY SCHOOL METHODS AND MATERIALS.

The problems, methods, materials, and techniques involved in the work of a high-school teacher.

Three credit hours first semester; one credit second semester.

For work in Art education see Ceramic courses 304 A and 304 B.

## ENGLISH

### 1-2. ENGLISH COMPOSITION.

The use of written and oral language. Three lectures and discussions per week.

Three credit hours each semester.

### 21-22. INTRODUCTION TO ENGLISH LITERATURE.

A survey of the development of English literature from its beginning to the close of the Nineteenth Century, with emphasis on the most significant writings of the representative authors in each period. Three lectures per week.

Three credit hours each semester.

### 35. TECHNICAL WRITING (PROFESSIONAL ENGLISH).

Practice in routine business correspondence followed by a study of the engineering report, technical article, and research paper. Primarily for ceramic engineering students.

Two credit hours.

## INDUSTRIAL MECHANICS

### 1-2. ENGINEERING DRAWING.

The fundamental principles of drafting and descriptive geometry.  
Three credit hours each semester.

### 3-4. MECHANICAL DRAWING.

A fundamental drafting course to acquaint the beginning art student with the graphical language used by engineers.  
Two credit hours each semester.

### 31-32. ADVANCED MECHANICAL DRAWING.

Mechanical drawing which parallels the commercial design course for junior art students, to give them as much practical industrial training as possible.

Two credit hours each semester.

## PHYSICAL EDUCATION

### 1-2.

Instruction is given in all the following activities: in the fall—football, cross-country, touch football, soccer, and tennis; in the winter—basketball, volley ball, wrestling, boxing, fencing, badminton, tumbling, games, contests and relays; in the spring—track, baseball, tennis and softball.

Required of freshmen.

Two hours practice.

One credit hour each semester.

### 11-12.

A continuation of 1-2 with more advanced instruction in skills of the various activities. Required of sophomores.

Two hours practice.

One credit hour each semester.

## PSYCHOLOGY

### 11. INTRODUCTORY PSYCHOLOGY.

An examination and discussion of the basic concepts in psychology, including: learning, motivation, heredity, environment, intelligence, emotion, personality, and adjustment. Demonstrations and group experiments.

Three credit hours, either semester.

### 32. EDUCATIONAL PSYCHOLOGY.

Development and behavior; emotional, social and mental development; nature and measurement of intelligence; nature of learning; principles of guidance in learning; transfer of training; adjustment process; mental health of students and teachers. Prerequisite, Psychology 11.

Three credit hours, either semester.

## SOCIOLOGY

### 21-22. INTRODUCTION TO SOCIOLOGY. Three hours.

An introduction to social structures and social processes, with stress on the interaction of individuals and groups within the larger culture. This course is not open to freshmen except with the special permission of the department chairman.

Three credit hours each semester.

## SCHOLASTIC REGULATIONS

### REGISTRATION

All students are expected to register on the days designated for that purpose in the College calendar. Any student not registering on the days set therefor will be charged a fee of five dollars for late registration.

Each student in the Technology and Engineering Departments is expected to register for at least sixteen hours of work. Each student in the Art Department is expected to register for at least fifteen hours of work each semester.

The conditions under which students may register for more than the number of hours specified in the curriculum are the following: (1) physical training and assembly may be taken in addition to the regular schedule; (2) if a student had an average grade of B or higher in the preceding semester, he may register for additional work with approval of the Dean of the College.

With the exception of the electives, all courses are definitely prescribed, and no change can be made in the schedule. Electives may be chosen by the student from a permissible list, but in making his selection he should be governed by the advice of the faculty.

### CREDIT, ATTENDANCE, EXAMINATIONS

One class period per week for one semester, lecture or laboratory, constitutes one unit of credit. The number of these credits required for graduation varies among the three departments as indicated in the curricula.

The class period is fifty minutes. The laboratory periods vary from two to four hours in length. Regular attendance without tardiness is expected of all the students. Absence on the day preceding or the day following a vacation period during the College year makes the student liable for penalty.

In addition to the routine quizzes that are given periodically throughout the semester, final comprehensive examinations are given in each course at the end of the semester covering the entire semester's work. This examination is the main factor in determining the scholastic standing of the student. A "block week" period of several days immediately preceding these examinations is provided, with no classes in operation, so as to afford ample opportunity for the student to review the semester's work and correlate all parts of it. The full time of the faculty is available for private consultation during this period.

## ADMINISTRATION OF SCHOLASTIC STANDARDS

Owing to the exacting demands of the ceramic profession, relatively high standards of scholarship must be maintained. Students unable to meet these standards are dropped from the College. However, every possible effort is made by the faculty to assist every student to meet these standards. Instructors are available for private consultation and help, and the instructional work itself is supplemented by a system of faculty advising intended to help the student with all of his problems.

The Scholastic Standards Committee of the College has charge of the application of all scholastic regulations. Students have the privilege of meeting with the committee for the purpose of presenting any information they wish to have the committee consider in connection with their scholastic difficulties.

Students who fail to meet the scholastic requirements of the college are placed on probation for one semester. If, at the end of the probation semester, the student has failed to raise his scholastic index to the required figure, he is dropped from college. In this case he is not eligible to apply for readmission until one semester has intervened. For this purpose, a six-week summer session does not constitute an intervening semester.

### GRADES AND INDICES

The grades used by the instructors in reporting the scholastic status of the students and the points corresponding with the grades are given in the following table:

Grade	Quality of Work	Point per Credit Hour
A . . . .	Excellent . . . . .	3
B . . . .	Good . . . . .	2
C . . . .	Fair . . . . .	1
D . . . .	Poor . . . . .	0
E . . . .	Conditioned Failure . . . . .	—1
F . . . .	Failure . . . . .	—1
I . . . .	Incomplete . . . . .	No Effect
WF . . . .	Withdrawn Failing . . . . .	—1
WP . . . .	Withdrawn Passing . . . . .	No Effect

The grade-point index is obtained by dividing the total number of points by the total number of credit hours. In determining the semester grade-point index only the grades and points for the semester are included. In determining the cumulative grade-point index all of the work for which the student has credit is included.

In order that students may have acceptable scholastic standing, the quality of their work in all their courses must be such as to yield the following cumulative grade-point indices:

Year	Grade-Point Index Required, Cumulative
Freshman . . . . .	0.50
Sophomore . . . . .	0.75
Junior {First semester . . . . .	0.85
{Second semester . . . . .	1.00
Senior . . . . .	1.00

These requirements apply to either semester of the College year. A student who for the first time fails to meet these requirements but whose cumulative grade-point index is within 0.5 of the specified figure, will not be dropped from College immediately but will be given one semester of scholastic probation to bring his index up to the required standard. If at the end of the probationary semester he fails to raise the index to the required standard, he becomes ineligible to continue in College. A student who is not on probation but whose cumulative grade-point index is more than 0.5 below the required index, immediately becomes ineligible to continue in College.

### HONORS, PRIZES AND AWARDS

Members of the freshman, sophomore, and junior classes, who have a cumulative grade-point index of 2.0 or more, are eligible for a certificate of merit.

Members of the senior class may receive honors as follows:

- Summa cum laude, or highest scholastic honors, to those having a cumulative index of 2.9 or more, with no grade below B.
- Magna cum laude, or high honors, to those having a cumulative index between 2.6 and 2.9, with no grade below C.
- Cum laude, or honors, to those having a cumulative index between 2.2 and 2.6.
- Departmental honors to those who are recommended by the heads of the various departments as having done superior work and who have a cumulative index of 2.2 or more.

The Major Edward Holmes Thesis Prize of \$25 is awarded to the senior in either of the Technology or Engineering Departments who submits the best research thesis. The award is decided by a committee of industrial executives, representing the Ceramic Association of New York, the founder and donor of the prize.

The College Citizenship Award, also established by the Ceramic Association, is made annually, by nomination by students and vote of the faculty, to that Senior whose entire record as a College citizen is most outstanding.

The award of research fellowships is discussed in another section of this catalogue.

### REQUIREMENTS FOR GRADUATION

Graduation depends upon successfully completing the prescribed courses of study with a grade-point index of 1.00 or more. No substitutions for the prescribed courses are permitted, but by means of the elective courses, some degree of variation in the curriculum to meet the individual wishes of the student is possible. The College reserves the right to withhold a diploma for poor scholarship or other reasons.

### DEGREES

#### *Degrees in Course*

The degree of BACHELOR OF SCIENCE (B.S.) is awarded to those students of the Department of Ceramic Engineering and the Department of Glass Technology, who successfully complete the prescribed courses of study in these departments with scholastic cumulative grade-point indices of 1.00. The department in which the student majored is stated on the diploma.

The degree of BACHELOR OF FINE ARTS (B.F.A.) is awarded to those students who successfully complete the prescribed courses of study in the department of Design with a scholastic cumulative grade-point index of 1.00.

The degree of MASTER OF SCIENCE (M.S.) is awarded to graduate students who successfully complete the thirty-six hours of prescribed graduate studies and submit an approved research thesis. (See Graduate Studies)

The degree of MASTER of FINE ARTS is awarded to graduate students who successfully complete the thirty-six hours of prescribed graduate studies and submit an approved thesis. (See Graduate Studies)

A minimum of one year's residence is required for all degrees in course.

#### *Professional Degree*

The professional degree of CERAMIC ENGINEER (Cer. E.) may be conferred upon a candidate who holds a degree in some branch of engineering or science and who, after at least four years of industrial ceramic experience, is adequately recommended as having demonstrated superior ability in industrial engineering work. A full statement of his training and experience and an acceptable thesis on some of his engineering achievements must be submitted at least two weeks before Commencement. A graduation fee of \$10 is charged, and the candidate must present himself in person to receive the degree.

### PLACEMENT

The College cannot guarantee employment of its graduates, but all members of the staff assist graduates in finding positions for which they are fitted. The wide contacts which the College and its staff enjoy

with the whole ceramic industry result in the receipt of many inquiries for qualified persons. Graduating students who are considered to have the required qualifications for an open position are placed in direct contact with the persons interested.

Most of the positions which the graduates fill have to do with plant production, control of operations, research, industrial ceramic design, sales engineering, teaching and testing. All students are aided in finding the field of work for which they are particularly suited.

Salaries of graduates are on a par with those received in similar fields and vary greatly with the individual and the position. Advancement depends upon the ability to produce.

## GRADUATE STUDY

In cooperation with the Graduate School of Alfred University the College of Ceramics offers advanced courses leading to the following degrees: Master of Science in Ceramic Engineering, Master of Science in Ceramic Technology, Master of Science in Glass Technology, and Master of Fine Arts.

Requests for information and formal application for admission to the Graduate School should be addressed to the Dean of the Graduate School, Alfred University, Alfred, New York.

## TEACHING AND RESEARCH ASSISTANTSHIPS

Several graduate assistantships are available to worthy candidates. The holder of an assistantship must be a candidate for an advanced degree and he is expected to set up a program which will permit him to obtain his degree in two years. A graduate assistant is called upon to assist the members of the particular department with which he is associated in carrying on the work of that department. Applications for assistantships should be made to the Chairmen of the various departments. (See Faculty)

## MASTER OF SCIENCE DEGREE

To be eligible for general admission an applicant must have received a Bachelor of Science degree from a recognized institution and must present evidence of (a) his ability to carry on work at the graduate level, (b) sound character, (c) better than average scholarship in his undergraduate work.

Science graduates of the Ceramic College or others with equivalent preparation may earn the Master of Science degree in one or two years, depending upon the program set up.

The programs of students coming from other institutions may differ considerably from those of graduates of the College of Ceramics. Where the Bachelor's degree was obtained in a field other than ceramics, students will be required either: (1) to take undergraduate

courses in those subjects necessary to bring their backgrounds up to the level required for graduation from this College, or (2) to pass a comprehensive examination after suitable independent study, before they may become candidates for the Master of Science degree. More than one year will be required in such cases.

Courses marked with an asterisk in this catalogue are accepted for graduate credit. Where undergraduate preparation in ceramics is deficient, and such courses are taken for graduate credit, more work will be required than is usually covered by undergraduates.

✓ Due consideration will be given to graduate work done elsewhere. However, transferred credit must be of grade B or better, and it will not reduce the time of residence.

Generally, the Master of Science degree is evidence that the holder possesses a maturity and grasp of his major subject well beyond that of one having the bachelor's degree; that he is able, not only to read and study independently, but also to understand and apply the literature of his field.

Written application for admission to candidacy must be made by the student to the Dean of the Graduate School not later than three months before the date of graduation.

To become a candidate for the Master's degree a student must satisfy the Committee on graduate studies that he has met the following preliminary requirements.

(1) The satisfactory completion of 18 semester hours of acceptable courses, including not more than 9 hours of thesis work.

(2) At least one semester in residence with graduate standing.

(3) The completion of any non-credit prerequisites specified at the time of registration for graduate study.

(4) A grade-point index of at least 2.00 for courses completed and forming a part of the student's program.

(5) Acceptable performance on any qualifying or comprehensive examination required.

(6) Satisfactory progress on thesis, if it has formed a part of the student's program.

The complete requirements for the degree are:

(1) At least one year of residence (work must be completed within a period of three years).

(2) Thirty-six semester hours of study including thesis. The thesis may count for not more than 18, nor less than 12 of the required hours. Not more than 12 credit hours may be taken outside the candidate's field of specialization.

(3) A completed thesis based on original experimental work, on an approved subject, and so written as to be suitable for publication.

(4) Successful performance during a two-hour oral examination in the candidate's major field.

## MASTER OF FINE ARTS DEGREE

Interested persons are requested to write directly to the Chairman of the Design Department prior to making formal application. If at all possible, an interview will be arranged. However, formal application must be made to the Dean of the Graduate School prior to acceptance.

The prerequisites for graduate study toward the Master of Fine Arts degree are: (1) the Bachelor of Fine Arts degree or, (2) the Bachelor of Arts degree with a major in Fine Arts or Art Education or, (3) the Bachelor of Arts degree with the equivalent of fifty semester hours of professional art training in a recognized institution.

Credit and residence requirements for the Master of Fine Arts degree can be completed in two semesters, but graduate students who have not had sufficient undergraduate technical courses should plan on a longer period of study in order to complete the full requirements.

To be eligible for general admission an applicant must have received his degree from a recognized institution and must furnish evidence (a) of having ability to carry on work at the graduate level, (b) of sound character, (c) of better than average scholarship in his undergraduate work.

The programs of transfer students will differ considerably from those of students graduating with a Bachelor of Fine Arts degree from the College of Ceramics. Where the Bachelor's degree was obtained in a field other than ceramics, students will be required either: (1) to take undergraduate courses in those subjects necessary to bring their backgrounds up to the level required for graduates from the College of Ceramics or (2) to pass a comprehensive examination after suitable independent study, before they may become candidates for the Master of Fine Arts degree.

Due consideration will be given to graduate work done elsewhere. However, transferred credit must be of grade B or better and it will not reduce the time of residence.

Generally, the Master of Fine Arts degree is evidence that the holder possesses a maturity and grasp of his major subject well beyond that of one having the Bachelor's degree; that he is able, not only to read and study independently, but also to understand and apply the literature of his field.

Written application for admission to candidacy must be made by the student to the Dean of the Graduate School not later than 6 months before the date of graduation.

To become a candidate for the Master's degree, a student must satisfy the Committee on Graduate Studies that he has met the same preliminary requirements as those already outlined for the degree of Master of Science. The complete requirements for the degree are also the same, except that four years is allowed for the completion of the work, and the thesis is not necessarily written for publication. The final examination may differ in form.

## REGISTER OF STUDENTS: 1950-1951

<i>Name</i>	<i>Classification</i>	<i>Residence</i>
Alenius, Carl-Axel	Glass Graduate	Abo, Finland
Alexander, John M., Jr.	Eng. Senior	North Bellmore
Alliegro, Richard A.	Eng. Senior	Malverne
Armstrong, Andrew M. L.	I.C.D. Junior	Rochester
Asquith, Russell M., Jr.	I.C.D. Sophomore	Little Valley
Auskern, Allan	Eng. Junior	Brooklyn
Balint, Nancy B.	Tech. Junior	Yonkers
Barlow, Earle B.	I.C.D. Graduate	N. Abington, Mass.
Baugh, Elizabeth A.	I.C.D. Sophomore	San Antonio, Texas
Baxter, Allen J.	Eng. Junior	Naples
Beaudoin, Armand J.	Eng. Junior	Massena
Beebe, Robert G.	I.C.D. Freshman	Islip
Behrenberg, James L.	Eng. Freshman	Pittsburgh, Pa.
Behrenberg, John P.	Glass Junior	Pittsburgh, Pa.
Benzing, David H.	I.C.D. Junior	Springville
Berger, Donald F.	Glass Senior	Buenos Aires, Argentina
Berry, B. Richard	Eng. Freshman	Penn Yan
Best, Edison F.	Glass Graduate	Corning
Beswick, Roger P.	Eng. Sophomore	Washington, D. C.
Blankheit, Carolyn A.	I.C.D. Sophomore	Kenmore
Bloomquist, Robert L.	Eng. Freshman	Alfred
Boorman, John F.	Eng. Sophomore	E. Rochester
Brigham, Ralph V., Jr.	Eng. Senior	Almond
Brisson, William S.	Eng. Senior	Ridgewood, N. J.
Brown, Diana M.	I.C.D. Sophomore	New York
Brown, Donnell S.	I.C.D. Freshman	Binghamton
Brown, Merle L.	Eng. Sophomore	Chandlers Valley, Pa.
Brownell, Wayne E.	Res. Special	Hornell
Brummer, George M.	Eng. Freshman	Williamsville
Byers, Eleanor L.	I.C.D. Junior	Rochester
Carl, John E.	Eng. Senior	Hammondsport
Carson, Allison R.	I.C.D. Junior	Houlton, Me.
Casterline, Dale R.	Eng. Freshman	Painted Post
Chapin, Janice G.	I.C.D. Sophomore	Corning
Chapman, Frank E., Jr.	Eng. Sophomore	New York
Chart, Margaret A.	I.C.D. Freshman	Addison
Childs, Clayton G.	Eng. Sophomore	Friendship
Chiu, Hung-Wen	Glass Special	Shanghai, China
Chodos, Martin	I.C.D. Junior	New York
Christiano, Joseph P.	Eng. Freshman	Waterloo
Cipriano, Ronald N.	Eng. Freshman	Utica
Clark, Albert W.	I.C.D. Senior	Rutherford, N. J.
Clark, Howard H., Jr.	Eng. Senior	Buffalo
Clute, Charles V.	I.C.D. Senior	Bellerose
Goatney, Anne E.	I.C.D. Freshman	Hornell
Cohen, Herbert	I.C.D. Junior	New York
Colcord, John E.	Eng. Sophomore	Hempstead

<i>Name</i>	<i>Classification</i>	<i>Residence</i>
Cole, David L.	Eng. Freshman	Metuchen, N. J.
Cole, Sanford S.	Eng. Junior	Metuchen, N. J.
Conroe, Barden A.	Eng. Junior	Altamont
Constantinides, Janc W.	I.C.D. Freshman	Great Neck
Cook, Miles H.	Eng. Freshman	Middletown
Coombs, Jack A.	Eng. Freshman	Addison
Corson, Robert M.	Glass Sophomore	Endicott
Cosolito, Bartolo	Eng. Freshman	Port Washington
Cremean, Robert W.	I.C.D. Freshman	Toledo, O.
Crouchley, George E.	Glass Senior	Westbury
Curran, Martin T.	Eng. Sophomore	Moir
Cushing, Val. M.	I.C.D. Junior	Rochester
Cutting, Paul R.	Eng. Freshman	Chaffee
Dahoda, Peter	I.C.D. Senior	Cohoes
Decker, Edward L.	Eng. Junior	Hudson
DeCoursey, Donald T.	Eng. Freshman	Brooklyn
DeForest, Raymond A.	Eng. Sophomore	White Plains
Dello Strologo, Sergio R.	I.C.D. Senior	New York
Denero, John V.	Eng. Sophomore	E. Syracuse
Dennerlein, John R.	Glass Senior	Valhalla
Dessel, Stanford J.	Tech. Freshman	Cedarhurst
Diefenderfer, Richard P.	Eng. Freshman	Bradford, Pa.
Disch, Joan A.	Tech. Junior	Dolgeville
Distler, Robert R.	I.C.D. Senior	Floral Park
Dobson, Evelyn	I.C.D. Sophomore	Alfred
Dorf, Arthur L.	Eng. Sophomore	Brooklyn
Dries, Gerald J.	Eng. Freshman	Arkport
Driscoll, Bernard E.	Eng. Senior	Wellsville
Dulin, Francis H.	Eng. Freshman	Sarasota, Fla.
Dungan, Robert H.	Eng. Senior	Hornell
Durst, William A.	Eng. Junior	Mayville
Earl, Fred C.	Eng. Junior	Broadalbin
Earl, William A.	I.C.D. Sophomore	Bolivar
Egbert, Leigh B.	I.C.D. Sophomore	Ithaca
Eichenberger, Frederick J., Jr.	Eng. Junior	Elba
Fiwen, George E.	Glass Graduate	New York
Eldred, Oren J.	Eng. Senior	Oneonta
Englert, Frances A.	Tech. Freshman	Hornell
Epstein, Sylvia	I.C.D. Freshman	Brooklyn
Ersley, Chauncey J., Jr.	Eng. Sophomore	Rexville
Esposito, Russell P.	Eng. Freshman	Pawling
Evans, George C.	I.C.D. Senior	Buffalo
Ewell, Robert C.	Eng. Sophomore	Saratoga Springs
Fahnert, Curtis E., Jr.	I.C.D. Senior	Lincoln, Ill.
Feldman, Gail H.	Glass Sophomore	Hempstead
Finney, Edwin L.	Eng. Senior	Middletown
Fish, E. Thomas	Eng. Sophomore	Brooklyn
Fitzsimmons, Robert F.	Eng. Junior	Oakfield
Fleming, Marilyn J.	I.C.D. Sophomore	Canajoharie
Fluhr, Robert A.	I.C.D. Graduate	Brooklyn

<i>Name</i>	<i>Classification</i>	<i>Residence</i>
Forry, Walter J.	Eng. Junior	Lancaster, Pa.
Foster, Malcolm O.	Glass Freshman	South Corning
Foster, Robert P.	I.C.D. Graduate	Lanoka Harbor, N. J.
Funk, James E.	Eng. Sophomore	Buffalo
Gelch, Howard H.	Eng. Sophomore	Brooklyn
George, William R.	Eng. Senior	Bridgeville, Pa.
Gersch, Herbert M.	Eng. Sophomore	New York
Giess, Edward A.	Eng. Senior	Floral Park
Gilluly, William F.	Eng. Junior	Port Allegany, Pa.
Goldenberg, Roberta S.	I.C.D. Freshman	Bronx
Goldstein, Marcy	Eng. Freshman	Bronx
Goss, Bruce R.	Eng. Sophomore	Weedsport
Gowdy, R. Ruch	I.C.D. Sophomore	Port Washington
Grewer, P. Douglas	Eng. Junior	Rochester
Griffen, Phyllis J.	I.C.D. Graduate	Hannibal, Mo.
Griffith, William A.	Glass Freshman	Little Falls
Gzowski, Edward R.	Eng. Junior	Oakfield
Halem, Robert G.	Eng. Freshman	New York
Hanna, Richard D.	Eng. Sophomore	Hartford
Harris, Daniel C.	Eng. Senior	Wellsville
Hauser, Richard E.	Eng. Sophomore	Buffalo
Hausman, Conrad K.	Eng. Freshman	Elmira
Hawkes, John H.	Eng. Junior	Baldwin
Hay, John	Eng. Special	Musselburgh, Scotland
Henkes, John L., Jr.	I.C.D. Sophomore	Loudenville
Henssler, Arthur E.	Eng. Freshman	Fredonia
Hessinger, Philip S.	Eng. Senior	Kenmore
Higgins, Wallace C.	I.C.D. Junior	Kendall
Hinds, H. Clark	I.C.D. Senior	Williamsport, Pa.
Holman, Eugene W.	Eng. Graduate	Ransomville
Homer, Richard W.	I.C.D. Junior	Bethlehem, Pa.
Hosbein, Roger L.	Eng. Graduate	Glencoe, Ill.
Hui, Ka-Kwong	I.C.D. Senior	Honkong, China
Humphrey, John P. S.	Eng. Freshman	Canistota
Hurley, Ann D.	I.C.D. Special	Tulsa, Okla.
Husted, Wayne D.	I.C.D. Senior	Poughkeepsie
Ichikawa, Yoshio	Eng. Sophomore	Wahiawa, Oahu, T. H.
Jacobs, Jean M.	I.C.D. Freshman	Belmont
Jacobs, Joan E.	I.C.D. Freshman	Belmont
Jacobs, Robert D.	Eng. Freshman	Scio
James, Esta K. (Mrs.)	I.C.D. Junior	New York
Jasper, Stanley J.	Eng. Freshman	Paterson, N. J.
Jones, George A.	Eng. Graduate	Sherrill
Jones, M. Roxanne	I.C.D. Sophomore	Park Ridge, Ill.
Jones, Roger D.	Eng. Senior	Buffalo
Jordan, Duane R.	Glass Freshman	Oncida
Joseph, A. David	Glass Sophomore	Highland Park, N. J.
Kane, Daniel	Eng. Graduate	Dunkirk
Kassel, Eugene R.	Eng. Senior	Bronx
Kast, Henry G.	Eng. Freshman	Athol Springs

<i>Name</i>	<i>Classification</i>	<i>Residence</i>
Katnack, Fred L.	Glass Freshman	Cold Spring Harbor
Keagle, John C.	Glass Freshman	Elmira
Keck, John G.	Eng. Freshman	Tenafly, N. J.
Keeffe, Daniel J.	Tech. Freshman	Scarsdale
Kester, Stuart B., Jr.	I.C.D. Sophomore	Boston
Kinsman, Bradley Q.	Eng. Junior	Amsterdam
Kirkland, Walda R.	I.C.D. Sophomore	New York
Klein, Jonathan D.	Glass Freshman	Brooklyn
Knapp, Robert C.	Eng. Senior	Hornell
Knudsen, Friedrich P.	Eng. Graduate	New York
Kober, Karl E.	I.C.D. Freshman	Herkimer
Larisch, Herbert W.	Eng. Junior	Hewlett
LaVan, Barbara W.	I.C.D. Senior	Ransomville
Lawrie, Alexander R.	Eng. Freshman	E. Rochester
Lax, Michael S.	I.C.D. Senior	New York
Lax, Rosemary R.	I.C.D. Sophomore	Chicago
Levine, Robert J.	I.C.D. Graduate	New York
Lewis, Robert T.	Glass Freshman	Bayside
Lindenthal, James R.	Eng. Freshman	Freeport
Lindsay, Bruce G.	Eng. Freshman	Nutley, N. J.
Litchfield, Nancy A.	Tech. Junior	Mayville
Lockhardt, Eleanor C.	I.C.D. Senior	Northwood Ridge, N. H.
Lombard, Francina H.	I.C.D. Special	Bedford C. P., South Africa
Louy, Darrell E.	Eng. Freshman	Campbell
Ludwig, Urban W.	Glass Graduate	Jamaica
Lumbert, Bernard C.	Eng. Freshman	Greenwood
McClelland, Joyce E.	I.C.D. Sophomore	Springville
McClurg, Robert L.	Eng. Freshman	Painted Post
McClurg, William B.	Glass Junior	Painted Post
McHenry, William L.	Eng. Freshman	Lewiston
McKenna, John F.	Glass Junior	Bellerose
McMahon, John F.	Glass Senior	Alfred
McMurtry, Carl H.	Eng. Sophomore	Wellsville
McNamara, Richard B.	Eng. Senior	Buffalo
McNeilly, Clyde E., Jr.	Eng. Freshman	Oneonta
McNicol, Daniel E.	Eng. Freshman	Clarksburg, W. Va.
McWilliams, Robert J.	Eng. Junior	Brooklyn
Maguire, Andrew H.	Glass Sophomore	Trenton, N. J.
Mangefrida, David J.	Eng. Freshman	LeRoy
Marcus, Leon	Eng. Junior	Brooklyn
Maroon, William R.	I.C.D. Freshman	Niagara Falls
Marshall, Claude L.	Eng. Freshman	Middletown
Marshall, Darwin	Eng. Graduate	Buffalo
Martin, H. Donn	Eng. Sophomore	Alfred
Martin, Orin K., Jr.	Glass Sophomore	Needham, Mass.
Martz, Gordon L.	I.C.D. Senior	Arlington Heights, Ill.
Martz, Jane M.	I.C.D. Junior	Veedersburg, Ind.
Matterson, Duane	I.C.D. Graduate	Seattle, Wash.
Mendez, Louis E.	I.C.D. Junior	Goshen
Mike, Thomas M.	Eng. Freshman	Hornell

<i>Name</i>	<i>Classification</i>	<i>Residence</i>
Miller, Elwin L.	Glass Special	Addison
Miller, Marlin, Jr.	Eng. Freshman	South Bend, Ind.
Miller, Norma B.	I.C.D. Senior	Elmira
Miller, Suzanne	I.C.D. Freshman	Canisteo
Mockus, Aldona	I.C.D. Junior	Amsterdam
Monroe, James E.	Eng. Senior	Hamburg
Montgomery, Daniel	Eng. Sophomore	Jacobsburg, O.
Moore, Carleton B.	Glass Freshman	Hempstead
Morgan, John M.	Eng. Junior	Schenectady
Moskof, Martin S.	I.C.D. Junior	Bronx
Murphy, James M.	Eng. Freshman	Hornell
Murthy, M. Krishna	Glass Graduate	Kolar, South India
Myers, Thomas J.	Glass Senior	Wappingers Falls
Nagan, Harold R.	Eng. Freshman	Rochester
Nelson, William I.	Glass Freshman	Binghamton
Nerenstone, Marc A.	Eng. Junior	New York
Newsome, George W.	I.C.D. Freshman	Springville
Nohle, Richard C.	Eng. Senior	Medina
Nolan, William F.	Eng. Junior	Deposit
Noren, Saul	Glass Freshman	New York
Norton, George R.	Eng. Junior	Sauquoit
Norton, James M.	Eng. Senior	Great Valley
O'Brien, Francis X.	Eng. Freshman	Port Washington
O'Brien, Neil H.	Eng. Sophomore	Port Washington
Odink, Harry J.	Eng. Freshman	Port Washington
Olenchuk, Daniel L.	Eng. Senior	Bayonne
Oliver, John H.	Glass Freshman	Corning
Olson, A. Joan	I.C.D. Freshman	Floral Park
Olympia, Frederick D.	Eng. Sophomore	Newburgh
Osborn, Janice L.	I.C.D. Sophomore	Battle Creek, Mich.
Owens, Robert K.	Eng. Junior	Elmira
Paladino, Albert E., Jr.	Eng. Freshman	Bellmore
Palmisano, Donald J.	Eng. Senior	Buffalo
Pappis, James	Eng. Sophomore	Boston
Parsons, Barbara J.	I.C.D. Special	Scotia
Patrick, Howard W.	Eng. Freshman	Pine City
Patterson, Clare B.	I.C.D. Special	.....
Pederson, John R.	Glass Junior	Wilkinsburg, Pa.
Pedrick, Francis C.	Eng. Sophomore	Lewiston
Pedro, Louis G.	Eng. Freshman	Owego
Peterson, R. Gordon	Eng. Senior	Falconer
Pettengill, Edwin R.	I.C.D. Junior	.....
Phillips, Dudley B.	Eng. Sophomore	Portville
Phillips, Leigh F.	Eng. Junior	East Quoque
Pixley, David M.	Glass Junior	New Hartford
Pixley, Francis V.	Eng. Senior	New Hartford
Pixley, George W.	Eng. Graduate	New Hartford
Powell, Richard H.	Eng. Senior	Jamestown
Prusik, Stephen A., Jr.	Eng. Senior	Franklin Square
Quick, Donald A.	Eng. Sophomore	Bolivar



<i>Name</i>	<i>Classification</i>	<i>Residence</i>
Raben, Trude O.	I.C.D. Special	Hamburg, Germany
Racine, Fritz E.	Eng. Junior	Haiti, B.W.I.
Rase, Daniel E.	Eng. Graduate	Cleveland, O.
Reed, James R.	Eng. Sophomore	Rochester
Reichle, Marvin C.	I.C.D. Graduate	Detroit, Mich.
Renkert, Donald H.	Eng. Sophomore	Canton, O.
Reuning, Charles R.	Eng. Junior	Wellsville
Richard, Marilyn R.	I.C.D. Sophomore	Herkimer
Richardson, Nancy A.	I.C.D. Freshman	Old Greenwich, Conn.
Ridgeway, Thomas J., Jr.	Eng. Junior	Niagara Falls
Riebert, Richard P.	Eng. Sophomore	Dobbs Ferry
Riker, Leon W., Jr.	Eng. Junior	Spencer
Roach, Wilfred H.	Glass Senior	Falconer
Robbins, Ronald S.	Eng. Freshman	Hornell
Robbins, Ross W., Jr.	Eng. Sophomore	Lancaster
Rodman, Stuart E.	Eng. Sophomore	Binghamton
Rosen, Louis E.	Eng. Junior	Elmhurst, Ill.
Rothmer, Ilse	I.C.D. Graduate	New York
Roy, Peejush K.	Glass Graduate	Calcutta, India
Ruggles, Robert W., Jr.	Eng. Special	Elmira
Russell, Edward B.	I.C.D. Freshman	Schenectady
Russell, George A., Jr.	Eng. Freshman	Orchard Park
Ryder, Robert J.	Glass Sophomore	Olean
Sailer, Edward	Eng. Sophomore	Bellmore
Sayer, Ethel D.	I.C.D. Senior	Middletown
Scallon, Barbara L.	I.C.D. Sophomore	Oneida
Schaa, Ferdinand A., Jr.	Eng. Senior	Bay Shore
Schaefer, William H., Jr.	Eng. Senior	Addison
Schoenfeld, Norman	Eng. Senior	Hewlett
Schrader, David M.	Eng. Junior	Massillon, O.
Schuenzel, Ernest C.	Eng. Senior	Mahopac
Schulmeister, Alice M.	I.C.D. Senior	Niagara Falls
Schultz, James B.	Eng. Junior	Akron
Schulz, Eugene G., Jr.	Eng. Senior	Bronx
Schwenkler, Edward P.	Eng. Freshman	Elmira
Sceley, Clarence E.	Eng. Junior	Galeton, Pa.
Severin, Harold	Eng. Freshman	Schkeuditz, E. Germany
Sheehan, Robert W.	Tech. Junior	Yonkers
Sheeley, William J.	Eng. Junior	.....
Sheets, Herbert D.	Eng. Senior	Middletown
Sheheen, Alexander T.	Eng. Graduate	Hornell
Sherman, Ann W.	I.C.D. Freshman	Silver Creek
Shippy, Gordon D.	Eng. Junior	Niagara Falls
Singleton, Robert J.	Eng. Sophomore	Hornell
Small, Carlton F., Jr.	Eng. Junior	New London, Conn.
Smith, Ralph S., Jr.	Glass Freshman	Irvington-on-Hudson
Sommer, Alfred	Eng. Junior	Hornell
Sonenshine, Lewis	Eng. Sophomore	Bronx
Spangenberg, William C.	Eng. Senior	Albany
Spring, Kenneth L.	Glass Senior	Spring Valley

<i>Name</i>	<i>Classification</i>	<i>Residence</i>
Stanley, H. Monroe, Jr.	Eng. Freshman	Watervliet
Stapleton, Robert E.	Eng. Junior	Floral Park
St. Clair, John H.	Glass Junior	West Valley
Stillman, D. Richard	Eng. Special	Friendship
Stone, Jerrold R.	Tech. Freshman	Gongers
Storer, John P.	Eng. Freshman	New York
Stromgren, J. Bruce	Glass Sophomore	Jamestown
Stubbs, John M.	Eng. Junior	Ridgewood, N. J.
Stull, John L.	Glass Junior	Hornell
Styhr, Karsten H., Jr.	Eng. Junior	Huntington
Sutton, Willard H.	Eng. Junior	Alfred
Swain, Janice A.	I.C.D. Freshman	Cleveland Heights, O.
Swanson, Ralph A.	Eng. Sophomore	Caledonia
Swart, Robert	Eng. Sophomore	East Aurora
Swartz, David L.	Eng. Senior	Sherman
Swearingen, M. Barbara	I.C.D. Special	Bath
Sweet, Roderic V.	Eng. Freshman	Falconer
Tacler, David H.	Eng. Freshman	New York
Tao, Yung	Glass Junior	Kunming, China
Tarny, Eugene G.	Eng. Senior	Astoria
Tatem, William A.	Eng. Freshman	Westbury
Taylor, Charles H., Jr.	Eng. Junior	Buffalo
Terr, Samuel	I.C.D. Graduate	New York
Thornton, Hubert R.	Glass Freshman	VanEtten
Timko, Marvin T.	Tech. Senior	Trenton, N. J.
Tostevin, Edgar R., Jr.	Eng. Junior	Purdy's
Tower, Bernard A.	Eng. Sophomore	Bolivar
Trzaskos, Stanley J.	Eng. Senior	.....
Tunkel, Burton	I.C.D. Sophomore	Brooklyn
Turner, Edward J.	Eng. Freshman	Bellmore
Tuska, John R.	I.C.D. Freshman	Richmond Hill
Ugol, Louis	Eng. Senior	Rochester
Viola, Nazzareno, Jr.	Eng. Sophomore	Little Falls
Wagner, James B.	Glass Junior	Sinclairville
Waith, Frank L.	Eng. Freshman	Falconer
Wakely, Wilbur T.	Glass Junior	S. Glen Falls
Walker, Maurice H., Jr.	Glass Freshman	Corning
Walton, Irving	Eng. Senior	New York
Warren, Robert F.	I.C.D. Freshman	Geneseo
Waugh, J. Stanley	Eng. Sophomore	E. Patchogue
Webb, Bradley A.	Eng. Junior	Hamburg
Whalen, Thomas J., Jr.	Glass Sophomore	Rochester
Whalley, Roger E.	Eng. Senior	Buffalo
Wightman, Carl A.	Glass Freshman	Bath
Williams, Robert M.	Eng. Graduate	Brooklyn
Williams, Suzanne R.	I.C.D. Freshman	Utica
Wilson, Roger E.	Eng. Graduate	Lockport
Wood, Russell K.	Eng. Sophomore	Pasadena, Calif.
Woodin, Harrison D.	I.C.D. Junior	New Paltz
Woodward, Roger W.	Eng. Senior	Elmira

<i>Name</i>	<i>Classification</i>	<i>Residence</i>
Wright, Harold D.	Eng. Junior	Mineral Ridge, O.
Wright, Jack E.	I.C.D. Graduate	Watson town, Pa.
Wright, Kenneth L.	I.C.D. Freshman	Newburgh
Wyndham-Quin, Francis H., Jr.	Eng. Junior	Oradell, N. J.
Youngs, Robert A.	Eng. Senior	Olean
Zeman, John R.	Eng. Freshman	Little Falls
Zielinski, Louis	I.C.D. Freshman	Phoenixville, Pa.
Zlotnick, Herman	Eng. Freshman	Brooklyn
Zneimer, Joel E.	Eng. Senior	Rockville Centre
Zudeck, Simone	I.C.D. Freshman	Lynbrook

## DEGREES CONFERRED JUNE, 1951

### BACHELOR OF SCIENCE

#### *In Ceramic Engineering*

John Martin Alexander, Jr.	Donald Joseph Palmisano
Richard Alan Alliegro	James Albert Parson
Ralph Victor Brigham, Jr.	Ralph Gordon Peterson
William Stanley Brison	Francis Vatable Pixley
Thomas Michael Cantwell, Jr.	Richard Herbert Powell
John Edward Carl	Robert Elton Prigge
Howard Hurlbutt Clark, Jr.	Stephen Anthony Prusik, Jr.
Robert Hugh Dungan	Ferdinand August Schaa, Jr.
Oren John Eldred	William Howard Schaefer, Jr.
Edwin Lee Finney	Norman Schoenfeld
William Russell George	Ernest Charles Schuenzel
Edward August Gies	Eugene George Schulz, Jr.
Daniel Christiana Harris	Herbert Dwight Sheets
Philip Scott Hessinger	Alfred Sommer
Roger Davies Jones	William Carl Spangenberg
Eugene Robert Kassel	David Lawrence Swartz
Robert Carl Knapp	Stanley Joseph Trzaskos
Richard Brian McNamara	Robert Charles Turner
Robert James McWilliams	Louis Ugol
James Edward Monroe	Irving Walton
Marc Abraham Nerenstone	Roger Edwin Whalley
Richard Charles Nohle	Robert Arthur Youngs
James Michael Norton	Joel Edward Zneimer
Daniel Leon Olenchuk	

#### *In Ceramic Technology*

Marvin Thomas Timko

#### *In Glass Technology*

Donald Francis Berger	Thomas Joseph Myers
George Eric Crouchley	Wilfred Herbert Roach
John Francis McMahon	Kenneth Louis Spring

### BACHELOR OF FINE ARTS

#### *In Industrial Ceramic Design*

Albert William Clark	Barbara Wilson LaVan
Charles Valgene Clute	Michael S. Lax
Peter Dahoda	Eleanor Charlotte Lockhardt
Sergio Richard Dello Strologo	Gordon Louis Martz
Robert Roland Distler	Norma Betty Miller
George Cott Evans	Ethel Sayer Nania
Curtis Ernst Fahnert, Jr.	Alice Martha Schulmeister
Howard Clark Hinds	Janice Ann Swain
Ka-Kwong Hui	Ruth Goodrich Wray

MASTER OF SCIENCE

*In Ceramic Engineering*

Daniel Francis Kane, Jr.  
Alphonse John Kirsch  
Friedrich Paul Knudsen  
George Edwin Lorey

Harry S. Parker  
Daniel Edward Rase  
Robert Mantell Williams

*In Glass Technology*

Edison Frederick Best  
George Ernest Eiwen

Urban Wilbert Ludwig  
M. Krishna Murthy

MASTER OF FINE ARTS

Phyllis Jean Griffen  
Francina Helena Lombard

Ilse Rothmer  
Jack Edwin Wright