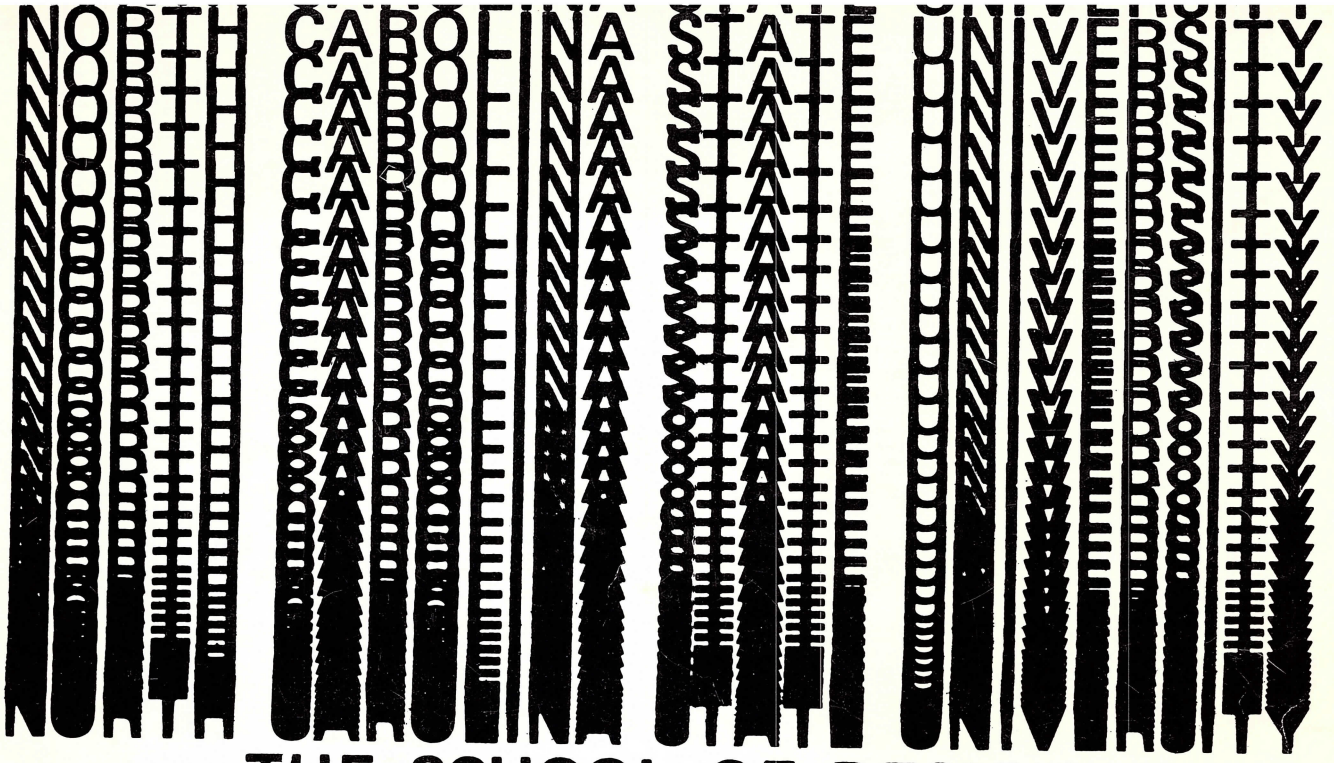
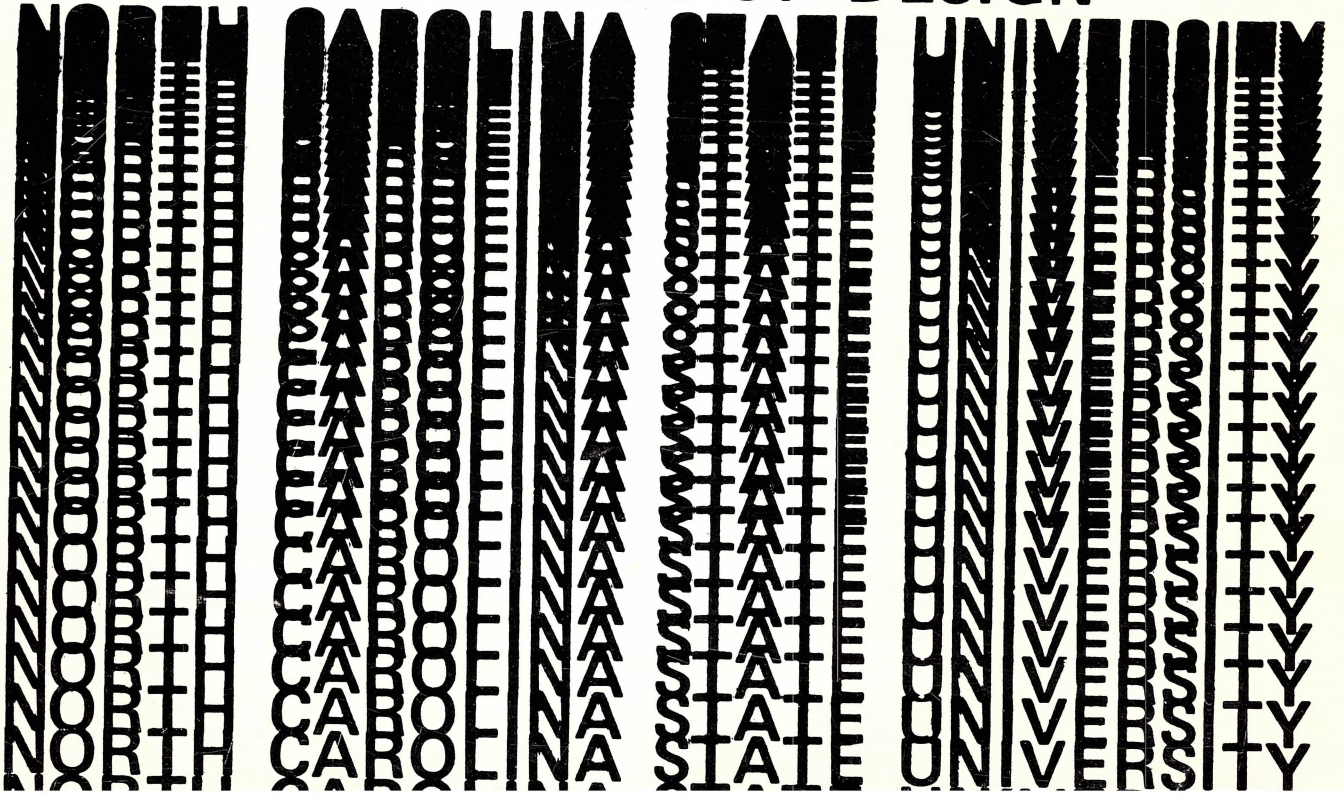


THE SCHOOL OF DESIGN



1970

University of North Carolina: William C. Friday, President / North Carolina State University at Raleigh: John T. Caldwell, Chancellor / Harry C. Kelly, Provost / School of Design: Henry L. Kamphoefner, Dean / Robert Paschal Burns, Jr., Head - Department of Architecture / Richard R. Wilkinson, Head - Department of Landscape Architecture / Vincent M. Foote, Acting Head - Department of Product Design.

The School of Design in its brief history since 1948 has established a role as an experimental institution in broad fields of design. Although the School is experimentally oriented in its teaching and research, it nevertheless recognizes the dangers inherent in a materialist-technological civilization where there may be an over-reliance on the machine and the mechanical technology available for use in the design of man's physical environment. Therefore, the School gives attention to the larger responsibility of design, the art of humanizing the environment. Also, the School seeks to integrate the designer as a social human being and a scientist-designer and encourages and nurtures the comprehensive designer as the coordinator of the structural dynamics in the overall pattern of life.

While the School's first aim is to serve North Carolina and the regions of the South, the students are basically trained, through the teaching of the School, so that they will be capable of working in any region. Because character, a profound devotion, and an absolute professional commitment are prime ingredients of any creative activity where social responsibilities are vital, as in design, the School fosters and cultivates the integrity of the individual. The School of Design emphasizes individual creative expression and at the same time encourages and develops a capability and temperament for teamwork.

The faculty members of the School of Design have been selected for their individual and diverse personal philosophies and their individual yet divergent professional qualifications. The School has brought together creative personalities willing in their teaching to subordinate their own professional interests to the interests of their students. Each faculty member gives the young student the benefit of his professional knowledge, his technical training and his experience as a citizen.

To combat the dangers of over specialization, the School seeks to develop the personality and character of the student as a whole. The goal in the growth of the student is not only the mastery of design techniques in his profession; but through the stimulation and the development of the intellectual and emotional capacity together, a readiness is developed to meet the challenge of any environment.

The School of Design is intended to act as an educational center which unifies the different design professions in the fundamental knowledge and methods which they share; its further intention is the education of men who will be competent within the specific demands and limitations of a particular field of design. The existence of contemporary man, and the greatest purpose of contemporary design is considered to be the solution of those requirements through full use of the ingenuity, knowledge and understanding of contemporary man. Through this point of view, the technical and factual aspects of design present no conflict with its philosophical and aesthetic standards.

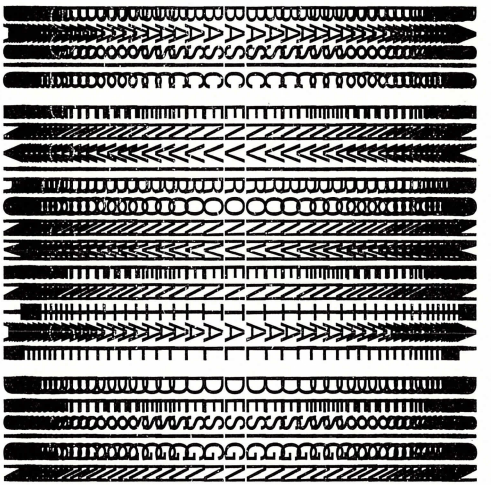
The School of Design presently offers undergraduate programs in Architecture, Landscape Architecture, and Product Design; and graduate programs in Architecture, Landscape Architecture, Product Design and Urban Design.

In all of the professional fields where studies are now established in the School, the methods and values which are common to all designers are separated only by the study of the application of the work in a single profession. Many classes throughout the curricula will include students in these professional fields, and for all students the course of study is similar during the first two years in order that, having become more familiar with the whole scope of activity in design, they may then select the design profession in which they are most interested. From his first day in class to his last, the student is asked to design, and he is counseled so that he may become a responsible professional in the broadest sense.



Henry L. Kamphoefner, Dean





The basic environmental design program encompasses the first two years of the student's design education. An orientation to certain skills, new and traditional, considered basic to design prepares the student for continued study in the specific professional disciplines. However, the principal objective of the program, in accord with the exigencies of the present day, is to develop within the student an understanding of the responsibilities of a designer when dealing with broad environmental issues.

The definition of these responsibilities is an ethical consideration, based on perceived values, so the educational problem becomes one of aiding the student in his discovery of values pertinent to design while avoiding the imposition of dogma. To meet this problem the subject-oriented core program encourages the development of the student's own value system. Through the student's individual experience, he is directed toward a greater perceptual awareness and conceptual understanding of the environmental context in which design activity takes place.

It is believed that an experiential base is a prerequisite for cognitive understanding of a field of learning, and this progression is recognized in the basic design program. The first-year work provides an opportunity for students to have complete experiences in design. What the student designs he also builds and experiences directly in its final state. In the second year there is a transition toward design as planning for and prediction of the nature and consequences of a given article or facility. Design activity tends to become abstracted from the direct production of the immediate object and more accurately simulates the nature of professional activity in design.

The core program in design emphasizes divergent thinking in problem identification, analysis, and solution. The program encourages students to explore various interfaces that occur between people's activity and the physical environment. These relationships may be physiological, psychological, social, or physical in nature.

Supportive course work in Perception and Communication and Visual Communication, under the aegis of the School of Design, is structured to: (1) expand the scope of the student's perception of the physical and social environment; (2) hone his ability to distinguish relationships, perhaps radically new ones, among the perceived characteristics of the environment; (3) develop his skill in communicating these insights to others. Course work in the history of design has been incorporated in the basic design program to instill in the student an appreciation of the recurrent nature of many design problems which modern man, in the narrowness of his vision, assumes to be unique to this time.

The designer's responsibility is perceived as structuring a problem, having techniques to discriminate among existing patterns of human behavior as well as forecasting physical relationships that would accommodate diverse behavior in the environment. His role is not to impose his values and judgment, but to predict the consequences of what he proposes, ensuring that the conflicts have thereby been resolved.

To these ends, the educational goals established for the environmental design program in the School of Design are: (1) that the student learn to identify the forces exerted in the community so that he could begin to understand the issues more clearly and could then begin to propose resolutions; (2) that the student have real and transferable experiences to understand user needs, both social and physical; (3) that the student learn to identify and state problems in the community; (4) that design students develop an attitude of concern for as well as anticipation of the consequences of their actions; (5) that students become consciously aware of design processes, emphasizing predictive thinking, synthesizing abilities, testing, qualitative evaluation, and goal structuring; (6) that the educational structure foster in the student a delight in designing which is intrinsic in the activity, not dependent on external criteria of worth.

BASIC ENVIRONMENTAL DESIGN PROGRAM
Foundation Program required in Architecture, Landscape Architecture, and Product Design

First Year

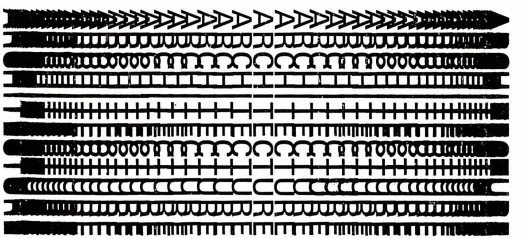
fall		spring	
DN 101 Environmental Design I	4	DN 102 Environmental Design II	4
DN 111 Perception & Communication I	2	DN 112 Perception & Communication II	2
DN 121 History of Design I	3	DN 122 History of Design II	3
Math[1]	3 or 4	Math[1]	3 or 4
ENG 111 Composition & Rhetoric	3	ENG 112 Composition & Reading	3
Physical Education	1	Physical Education	1
	16 or 17		16 or 17

Second Year

fall		spring	
DN 201 Environmental Design III	4	DN 202 Environmental Design IV	4
DN 211 Visual Communication I	2	DN 212 Visual Communication II	2
Required Science Elective[2]	4	Required Science Elective[2]	4
Physical Education	1	Physical Education	1
Electives[3]	6	Electives[3]	6
	17		17

1. Excluding credit for Math 111, must include one calculus course.
2. Selected from Natural, Physical, or Biological Sciences, but not to include Math or CSC.
3. See footnotes for elective requirements in undergraduate programs in Architecture, Landscape Architecture, and Product Design.





Architecture finds itself, upon entering the final three decades of the 20th Century, at a critical stage in its historical development. The architect's traditional problem of giving meaningful form to man's physical environment remains his chief concern, but this task has been vastly complicated by the forces of accelerating world urbanization and the technological revolution which is rapidly altering every facet of contemporary life. Social upheaval in the cities, ruthless violation of our landscape and natural resources, congestion and decay of our urban centers, obsolescence and inefficiency at every level of our transportation systems, the tendency toward giantism and anonymity in all of man's institutions—these are but a few elements in the complex condition of modern society with which the architect is confronted. The pastoral, the picturesque, the arrogantly lavish and the purely aesthetic have little relevance for a society whose design needs are so demanding that only the most broadly educated, intelligent and creative professionals can hope to cope with them. It is this type of professional that the Department of Architecture attempts to prepare—individuals with a profound understanding of man and his cultural context, with a deep commitment to the ordering of the physical environment, and with the necessary tools for accomplishing these objectives.

Inherent in the architecture program is recognition of the evolving role of the architect. While individual creativity and decision-making abilities are no less important, it is clear that the architect increasingly functions as member and frequently as coordinator of a team of professionals—engineers, planners, political and behavioral scientists, economists and others—who together are able to formulate the comprehensive programs adequate to meet today's most urgent environmental problems.

It becomes obvious that no monolithic academic program can serve the requirements of architecture students with highly divergent interests and capabilities, nor indeed the varied needs of the present-day architectural profession. The curriculum in architecture, while providing a broad basic structure common to all students, encourages individual diversity through a major elective program of in-depth study in one of several design-related fields leading to expanded backgrounds in social and cultural factors, programming and analytic methods, technological issues, urban affairs, visual studies, management and operations, economics or natural systems. Through interdisciplinary studies in the School and University and through the use of outside consultants, the interdependence of the architect with related professionals is strongly emphasized. The design studio is transformed into a working laboratory in which analysis and synthesis become real and meaningful activities to the students.

Considering the changing requirements in the field of architecture, and the increasing complexity of tasks facing today's architect, a six-year, two-degree curriculum has been inaugurated, replacing the previous five-year Bachelor of Architecture program. The major characteristic of the new curriculum is the formal organization of studies into logical two-year cycles.

The freshman and sophomore years combining general studies and introductory design exercises constitute the "Basic Design Program" common to all architecture, landscape architecture and product design students in the School of Design.

The junior and senior years mark the formal introduction to architectural studies and form the "Pre-professional Program." This four-year curriculum requires 129 semester hours and leads to the non-professional degree of Bachelor of Environmental Design. The third cycle is designated as the "Professional Program." in which the student undertakes two years of graduate study leading to the professional degree of Master of Architecture.

For students not advancing to the final cycle of graduate studies, the four-year undergraduate curriculum is designed as a terminal program qualifying graduates to enter architecture on a sub-professional level or related fields outside of architecture.

In terms of its larger responsibilities in the total preparation of the architect, the Department of Architecture acknowledges a divided but overlapping obligation with the profession. While office experience should extend the young architect's knowledge of technical aspects as well as judgmental maturity during the period of apprenticeship, it is the particular task of the department and the University to develop fundamental abilities in conceptual and developmental design and to provide a philosophical and theoretical basis for creative life as an architect and as an individual.

UNDERGRADUATE PROGRAM IN ARCHITECTURE
Degree to be awarded: Bachelor of Environmental Design in Architecture

First Year

fall		spring	
DN 101 Environmental Design I	4	DN 102 Environmental Design II	4
DN 111 Perception & Communication I	2	DN 112 Perception & Communication II	2
DN 121 History of Design I	3	DN 122 History of Design II	3
Math[1]	3 or 4	Math[1]	3 or 4
ENG 111 Composition & Rhetoric	3	ENG 112 Composition & Reading	3
Physical Education	1	Physical Education	1
	16 or 17		16 or 17

Second Year

fall		spring	
DN 201 Environmental Design III	4	DN 202 Environmental Design IV	4
DN 211 Visual Communication I	2	DN 212 Visual Communication II	2
Required Science Elective[2]	4	Required Science Elective[2]	4
Physical Education	1	Physical Education	1
Electives [6]	6	Electives [6]	6
	17		17

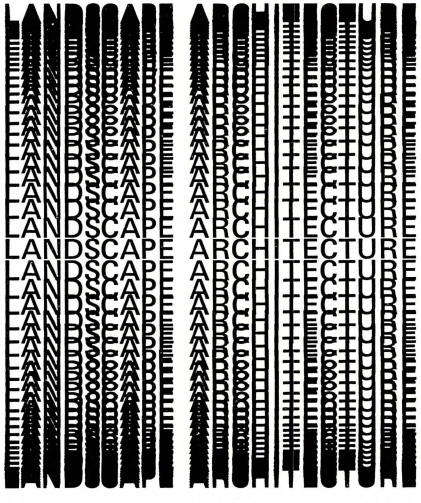
Third and Fourth Years

ARC 400 Intermediate Arch. Design (Series)[3]	16
Structures[4]	12
Professional Options [5]	10
Electives [6]	24
	62

1. Excluding credit for Math 111, must include one calculus course.
2. Selected from Natural, Physical, or Biological Sciences, but not to include Math or CSC.
3. Four semesters @ four credit hours/semester required in Intermediate Architectural Design or equivalent.
4. New sequence of four courses to be developed by a joint Architecture/Engineering Committee. Present courses will be retained until new courses are developed.
5. To be selected from Professional Options offered in the School of Design or appropriate courses offered in the University. Must include ARC 331 and ARC 332.
6. Thirty-six credit hours of electives which will be divided into three equal groups of 12 hours each:
   (a) Social science/humanities group.
   (b) Advised group—selected by student with adviser's approval to develop an area of concentration outside his major.
   (c) Unrestricted group.

TOTAL CREDIT HOURS 129




LANDSCAPE ARCHITECTURE

Landscape architecture in conjunction with other design disciplines has concerned itself with the development of spatial complexes for human use. It is one of several related approaches developed to introduce man to his environment and formalize his relationship with the external world. The domain of the landscape architect is the land and its materials, and his task has been to mold the outdoor components of the environment into functional and aesthetically satisfying spaces to be used for people.

In a practical sense the design disciplines are not producers of the knowledge necessary to support their activities. The student of landscape architecture is thus confronted with two basic tasks. He must learn the concepts and structure of the basic and applied sciences that explain the behavior of natural and social systems. The second and fundamental task is to construct from this knowledge a systematic and analytic approach to design. The design skills are then employed in the development of physical solutions to a wide array of problems confronting man and his environment.

The scope of the landscape architect's profession is expanding to include all dimensions of the social and physical context. This includes the design of intense urban areas to the structuring of public policy for the utilization of natural resources. He is in constant association with allied design professionals and is developing more probing contacts with the supporting disciplines of natural and human ecology. The process of implementing more complex design concepts is creating a new awareness of public and private development processes and the need for evolving new techniques to integrate the increasing array of development activity.

The student of landscape architecture in the School of Design will be involved in this context. The undergraduate program will concentrate on the structuring of a strong information base and the organization of an approach to design. Exercises selected will be designed to expose the student to an expanded view of problems susceptible to design solutions. At the time the student receives his degree he will have several options open to him. He can gain employment at the professional level with a private consulting firm, government agency or go on to graduate professional training at one of the schools offering programs in the several related design and planning fields. The clarity of purpose he will be required to develop will permit him a challenging and productive professional career.

UNDERGRADUATE PROGRAM IN LANDSCAPE ARCHITECTURE
Degree to be awarded: Bachelor of Environmental Design in Landscape Architecture

First Year

fall		spring	
DN 101 Environmental Design I	4	DN 102 Environmental Design II	4
DN 111 Perception & Communication I	2	DN 112 Perception & Communication II	2
DN 121 History of Design I	3	DN 122 History of Design II	3
Math[1]	3 or 4	Math[1]	3 or 4
ENG 111 Composition & Rhetoric	3	ENG 112 Composition & Reading	3
Physical Education	1	Physical Education	1
	16 or 17		16 or 17

Second Year

fall		spring	
DN 201 Environmental Design III	4	DN 202 Environmental Design IV	4
DN 211 Visual Communication I	2	DN 212 Visual Communication II	2
Required Science Electives[2]	4	Required Science Electives[2]	4
Physical Education	1	Physical Education	1
Electives[6]	6	Electives[6]	6
	17		17

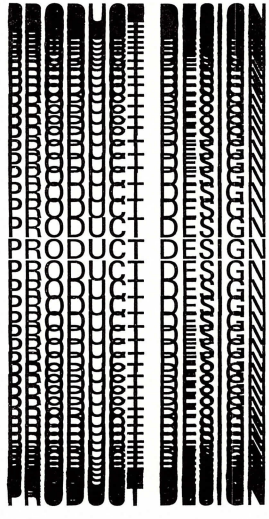
Third and Fourth Years

LAR 400 Intermediate Landscape Arch. Design (Series)[3]	16
DN 422 History of Design IV	3
Landscape Technology[4]	9
Professional Options[5]	10
Electives[6]	24
	62

1. Excluding credit for Math 111, must include one calculus course.
2. Selected from Natural, Physical, or Biological Sciences, but not to include Math or CSC.
3. Four semesters @ four credit hours/semester required in Intermediate Landscape Architecture Design or equivalent.
4. Landscape Technology Series to be elected from Departmental offerings or equivalent courses within the University.
5. To be selected from Professional Options offered in the School of Design or appropriate courses offered in the University.
6. Thirty-six credit hours of electives which will be divided into three equal groups of 12 hours each:
   (a) Social science/humanities group.
   (b) Advised group of electives selected by student with adviser's approval to develop an area of concentration outside his major.
   (c) Unrestricted group.

TOTAL CREDIT HOURS 129




PRODUCT DESIGN

Product Design, or Industrial Design, while originally concerned with helping industry style mass-produced consumer products, has, during the last two decades, begun to play an increasingly important role as a synthesizing force in product research, planning, development and marketing.

The Undergraduate Program of the Department of Product Design attempts to inculcate in the student a generalized, rather than a specialized, approach to the solution of design problems. The student is taught to treat man and his environment in terms of whole systems rather than isolated or component parts. Emphasis is placed on general overall solutions to human problems from which specific products are extrapolated.

Within the Department of Product Design there are two options: the Product Design Option and the Visual Design Option.

In the Product Design Option the student will be involved in three major design and research activities:

(a) Man's behavior.
(b) The man-machine relationship.
(c) The machine itself.

Only the most broadly educated and talented designers are able to handle the increasing complexities of materials and manufacturing developments in order to satisfy the physical and psychological needs of the consumer.

In the Visual Design Option the student develops an understanding of the elements and principles of visual organization common to all visual communication. The Visual Design Option includes studies in such activities as typography, illustration, production, photography, package design, display, corporate identity, and the development of techniques for analyzing visual character and its relation to social and behavioral functions in the urban environment.

The Undergraduate Curriculum in the Department of Product Design is a five-year program of study leading to the professional degree, Bachelor of Product Design. One hundred fifty-three hours are required for graduation.

UNDERGRADUATE PROGRAM IN PRODUCT DESIGN
Degree to be awarded: Bachelor of Product Design

First Year

fall		spring	
DN 101 Environmental Design I	4	DN 102 Environmental Design II	4
DN 111 Perception & Communication I	2	DN 112 Perception & Communication II	2
DN 121 History of Design I	3	DN 122 History of Design II	3
Math [1]	3 or 4	Math [1]	3 or 4
ENG 111 Composition & Rhetoric	3	ENG 112 Composition & Reading	3
Physical Education	1	Physical Education	1
	16 or 17		16 or 17

Second Year

fall		spring	
DN 201 Environmental Design III	4	DN 202 Environmental Design IV	4
DN 211 Visual Communication I	2	DN 212 Visual Communication II	2
Required Science Electives [2]	4	Required Science Electives [2]	4
Physical Education	1	Physical Education	1
Electives [3]	6	Electives [3]	6
	17		17

Third and Fourth Years

PD 400 Intermediate Product Design (Series) [4]	or		
PD 440 Intermediate Visual Design (Series)	16		
Product Design Technology [5]	6		
Professional Options [6]	16		
Electives [3]	24		
	62		

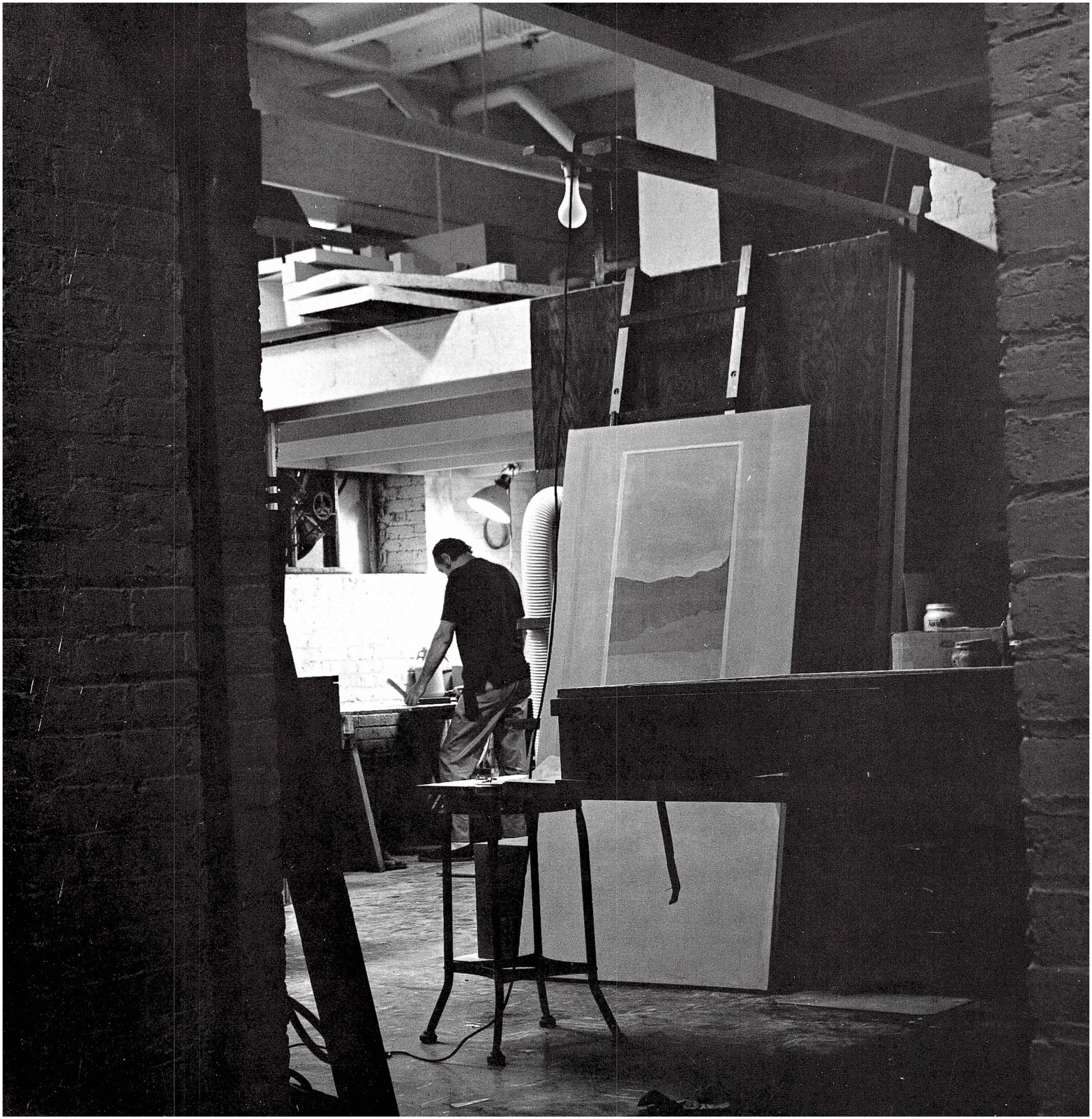
Fifth Year

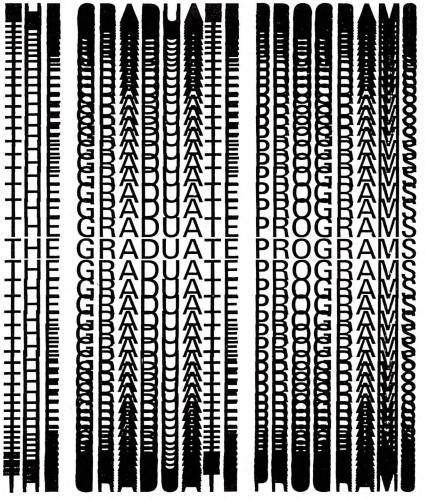
PD 501, 502 Advanced Product Design	12
PD 541, 542. Advanced Visual Design I, II.	12
PD 590, 591 Special Projects	6
Electives [7]	6
	36

1. Excluding credit for Math 111, must include one calculus course.
2. Selected from Natural, Physical, or Biological Sciences, but not to include Math or CSC.
3. Thirty-six credit hours of electives which will be divided into three equal groups of 12 hours each:
   (a) Social science/humanities group.
   (b) Advised group of electives selected by student with adviser's approval to develop an area of concentration outside his major.
   (c) Unrestricted group.
4. Four semesters @ four credit hours/semester required in Intermediate Product Design or equivalent.
5. Applied Physical Principles, PD 411,412.
6. To be selected from Professional Options offered in the School of Design or appropriate courses offered in the **University, and must include four semesters of PD 490 Intermediate Special Projects Series as well as PD 321, 322, PD 421, 422, and PD 431, 432.**
7. **Selected, with adviser, to reinforce the student's professional goals.**

TOTAL CREDIT HOURS 153






THE GRADUATE PROGRAMS

THE GRADUATE PROGRAM IN ARCHITECTURE

The Department of Architecture offers a new program of study leading to the Master of Architecture degree. While designed primarily as the concluding two-year professional component to follow the new four-year undergraduate Bachelor of Environmental Design curriculum in the total six-year program, the graduate program also provides courses of study for graduates holding the five-year Bachelor of Architecture degree. In addition, applicants with undergraduate degrees in fields other than architecture may be accepted as graduate students, and somewhat extended programs of study leading to the Master of Architecture degree will be designed to build on their previous academic experience.

The nature and complexity of the tasks which confront the architect make it paramount that the Master's program be broadly based and diversified. Reasonable flexibility is provided to structure each student's program of study in accordance with expressed interests and demonstrated capabilities. Essentially, Master's candidates are afforded concentrated education in depth so that they can prepare themselves for significant professional involvement in the environmental design fields as practitioners, teachers, researchers or in other more specialized areas.

A thorough mastery of this broad field requires that a graduate student attain a basic understanding of design methodology, relevant technologies, cultural and economic factors in architecture as well as ethical and operational aspects of architectural practice. While a clear comprehension of these subjects is essential, the architect must also understand their interrelationships and must demonstrate competence in their application through physical design activity.

The program will require for all students undertaking the normal two-year Master's program a minimum of 48 credit hours of course work of which 75 per cent will be in the major field and the remainder, constituting the minor, will be elected from various specialized areas. Course work in the minor field will be selected to reinforce the student's individual abilities and long-range career goals. While it is conceivable that almost any relevant field of study could be explored, it is assumed that the following interdisciplinary areas of investigation would most frequently be chosen: technology, programming and research methods, social and behavioral studies, administration and management, urban studies, ecosystems, and humanities and cultural studies.

A terminal project, constituting the final test of the candidate's mastery of his graduate program, may be written or drawn and shall consist of an interdisciplinary investigation of an approved problem which relates architectural studies with the student's minor field. For graduates holding the Bachelor of Architecture degree, a minimum program of 30 credit hours is required.

Departmental resources, including both physical facilities and faculty, are of exceptional quality. Members of the graduate faculty have been widely recognized for the excellence of their educational and professional accomplishments. A number of the faculty are active in independent consultation and private architectural practice and have received numerous awards for design.

An active program of faculty research in the developing design disciplines is maintained by several faculty members. Additional personnel resources directly available to the master's program in architecture include graduate faculty members from the departments of Landscape Architecture and Product Design, as well as the related fields such as social sciences and engineering. The possibilities for interdisciplinary studies with these faculty members is a major strength of the program.

A limited number of research assistantships and graduate fellowships are available for qualified applicants. Assistantships carry a stipend of $2900 per year and involve a weekly twenty-hour work commitment.

THE GRADUATE PROGRAM IN ARCHITECTURE
Degree to be awarded: Master of Architecture

ARCHITECTURE CORE ..... 36(18)

Design Group ..... 24(12)

ARC 501, 502 Advanced Architectural Design I, II
ARC 601, 602 Advanced Architectural Design III, IV
ARC 691, 692 Special Topics in Architecture
Graduate level design studios in Landscape Architecture, Product Design or Urban Design

Core Electives ..... 12(6)

Chosen from the professional, technical and design-supporting courses offered in Architecture and the School of Design, including:

ARC 511, 512 Professional Practice I, II
ARC 521, 522 Architectural Structures I, II
ARC 531, 532 Advanced Building Technology I, II
ARC 551 Research Methods in Architecture
ARC 621, 622 Architectural Structures III, IV
ARC 691, 692 Special Topics in Architecture
DN 511, 512 Advanced Visual Laboratory V, VI
DN 541 Seminar on Ideas in Design
DN 611, 612 Advanced Visual Laboratory VII, VIII
LAR 512 Physical Systems
LAR 521 Introduction to Regional Design
PD 521, 522 Colloquium V, VI
UD 520 Theory and Principles of Urban Design
UD 590 Special Topics in Urban Design I
UD 595 Environmental Perception
UD 610 Theory of Urban Form

MINOR ..... 12(12)

Minor programs may be selected in the following areas:
Technology
Programming and Research Methods
Social and Behavioral Studies
Administration and Management
Urban Studies
Ecosystems
Humanities and Cultural Studies

Summer Requirement: eight weeks of approved construction, office experience or foreign travel must be presented for graduation.

TOTAL CREDIT HOURS 48(30)

Note: numbers indicate the number of credits required for the two-year Master of Architecture program. Numbers in parentheses indicate requirements for minimum thirty-hour program leading to the Master of Architecture degree.

THE GRADUATE PROGRAM IN LANDSCAPE ARCHITECTURE

The program leading to the Master of Landscape Architecture degree is designed to provide an opportunity for students to engage in exploratory and developmental work in the solution of complex problems. In the practical sense it provides a structure for students to explore the complexity of changing environmental situations and develop more comprehensive techniques in analysis and synthesis. The program requires four semesters of academic work built around a core of four workshops comprising 18 semester hours. As a means to focus workshop activity on a common matrix, an area of North Carolina with complex environmental problems will serve as a laboratory. Each student will be expected to develop his own bias and create programs for its effectiveness in concert with other similarly engaged students. The laboratory area comprises a complex of public and private activity in an embryonic development stage and affords an opportunity to both observe and engage in the process of physical change.

In conjunction with the workshop core, a series of professional electives are required to study the existing methods and techniques of environmental design. These courses entail 12 semester hours and function to integrate the many unrelated approaches to environmental manipulation and design.

The third phase comprises 18 semester hours of student electives in the basic sciences that support the effective employment of each student's bias. These courses may be elected in any of three universities in the Triangle area, NCSU, Duke or UNC-CH. The purpose of the minor program is to ensure an opportunity for the student to gain a structured insight to another discipline and be conversant with its methodology and content.

The degree requirement, in addition to the 48 hours of academic work, is a seminar delivered in the terminal semester that relates the methods of environmental design to his minor program. Constraints posed by the program are the requirement that the student develop his worked examples within the laboratory area and that he focus both his design skills and supporting knowledge on the final worked example.

Students will be admitted to the program from a variety of disciplines to ensure an adequate mixture of student involvements. The program, however, is based on the student's fostering his own view of environmental quality and his work to achieve more comprehensive solutions to ongoing problems of physical change.

THE GRADUATE PROGRAM IN LANDSCAPE ARCHITECTURE
Degree to be awarded: Master of Landscape Architecture

LANDSCAPE ARCHITECTURE CORE 30

Design Group 18

LAR 503, 504	Regional Design Workshops I, II
LAR 603, 604	Regional Design Workshops III, IV
LAR 691	Degree Seminar

Core Electives 12

LAR 512	Physical Systems
LAR 521	Introduction to Regional Design
LAR 611	Physical Design Policy
ARC 551	Research Methods in Architecture
ARC 691, 692	Special Topics in Architecture
DN 511, 512	Advanced Visual Laboratory V, VI
UD 520	Theory and Principles of Urban Design
UD 590	Special Topics in Urban Design I
UD 595	Environmental Perception
UD 610	Theory of Urban Form

MINOR 18

Resource Management
Ecology
Water Resources
Regional Planning
Sociology and Urban Studies
Public Administration

TOTAL CREDIT HOURS 48

THE GRADUATE PROGRAM IN PRODUCT DESIGN

All students undertaking the two-year master's degree program will be required to complete a minimum of forty-eight hours of course work of which approximately seventy per cent will be in the major field and the remainder elected from various specialized areas. All students undertaking the one-year master's program will be required to take a minimum of thirty course hours of which approximately seventy per cent will be in the major field of study and the remainder elected from various specialized areas.

The program of course work to be followed by the student and the terminal project will be under the direction of the student's graduate committee. This committee will consist of a minimum of three graduate faculty members, at least two of whom represent the department and one represents the minor discipline. The terminal project shall constitute the final test of the candidate's mastery of his design studies. The project shall be developed in the sixth year and shall consist of an in-depth investigation of an approved problem with related departmental work in the student's minor field. Group projects, with a maximum of three students collaborating, may be permitted by special arrangement, if the problem to be explored is sufficiently broad or its nature requires a wide range of investigation.

The growing affluence of our society has created an expanding need for new products. This coupled with an ever-increasing middle class and shorter working hours has substantially broadened the industrial requirements for competent designers; designers who are able to handle the increasing complexities of material and manufacturing developments as well as satisfying the physical and psychological needs of the consumer. Industrial expansion has bred new dimensions of competition; competition that demands the consistent re-examination and design of even the most pedestrian products; competition that has overcome the manifestations of conspicuous consumption which permeated the market the last thirty years and that now has created a "performance" product market. Only the most broadly educated and talented designers are able to fulfill the needs of this industrialized culture—graduates who will aid in the solution of the numerous human problems that surround us on a regional, national, and international scale.

Applicants for this program may come from the following sources:

(1) Graduates of approved schools of product design.
(2) Graduates of approved programs of industrial design.
(3) Graduates of accredited schools of engineering.
(4) Graduates of accredited schools of architecture.
(5) Graduates of approved schools of visual design.
(6) Under special circumstances, students with degrees in fields other than design. In these latter instances an Advisory Committee will evaluate the applicant's preparation with regard to design capabilities and professional competence.

All applicants, in addition to meeting the requirements of the Graduate School, must meet the special requirements of the Department of Product Design with regard to professional competence.

THE GRADUATE PROGRAM IN PRODUCT DESIGN
Degree to be awarded: Master of Product Design

PRODUCT DESIGN CORE

Design Group 24

PD 501, 502	Product Design V, VI
PD 601, 602	Product Design VII, VIII
PD 590, 591	Special Projects

Graduate level design studio courses in Architecture, Landscape Architecture, and Urban & Regional Design.

Technical and Professional Group 9

PD 511, 512	Materials & Processes I, II
PD 532	Office and Industrial Practice
PD 631, 632	Product Engineering

Related Electives and Research

ARC 551	Research Methods in Architecture
ARC 691, 692	Special Topics in Architecture
DN 511, 512	Advanced Visual Laboratory V, VI
DN 541	Seminar on Ideas in Design
DN 611, 612	Advanced Visual Laboratory VII, VIII
LAR 521	Introduction to Regional Design
PD 521, 522	Colloquium V, VI
UD 595	Environmental Perception

MINOR 15

Course work in a minor field will be selected to strengthen the student's individual skills and professional goals. Many relevant fields of study might be included in this concept such as: economics, statistics, psychology, sociology, transportation.

TOTAL CREDIT HOURS 48

THE GRADUATE PROGRAM IN URBAN DESIGN

The urbanized population of North America has expanded at such a rate that the city has been subjected to forces which have resulted in large scale environmental changes. The expanding population, together with changes in life styles, socio-political institutions and technology have created environmental design problems of a scale and complexity beyond the capabilities of the existing professions of architecture and city planning. A new profession has emerged during the last decade to meet the need for a specialist with competency in developing alternative design concepts appropriate for urban populations.

Urban Design is the name given to this new interdisciplinary field concerned with the design of the physical environments of cities. It differs from architecture in that the process of design occurs over time and that the process involves a more complex analysis of larger portions of the physical environment than is required for individual buildings. It differs from city planning in that it is primarily concerned with the physical aspects of the city. Nevertheless, architecture and city planning provide the two major substantive areas of knowledge from which an urban designer draws his skills. Thus, urban design requires multi-disciplinary analytic skills as a fundamental part of the design process.

In response to the manifest need for specialists in large scale environmental design, the Department of Architecture in the School of Design of North Carolina State University at Raleigh together with the Department of City and Regional Planning at the University of North Carolina at Chapel Hill has developed a joint program in urban design. This program is designed to fit into the existing programs in both departments as well as the developing graduate programs in Landscape Architecture and Product Design at the School of Design. The program will lead to the degree of Master of Urban Design for graduate students in the School of Design at North Carolina State University, and is also available to graduate students pursuing degrees in City and Regional Planning at UNC-CH with an area of specialization in urban design.

Candidates for the program in urban design will be drawn from both design and non-design backgrounds. Those students whose undergraduate major lies in the fields of architecture, landscape architecture, environmental design, city and regional planning, regional design, arts with a design major, product design and other design-related areas can normally expect to complete their course of studies within two years or four academic semesters. Students entering from non-design backgrounds will be expected to extend the program of study by one semester. In addition, a summer internship period of ten weeks is required of all students prior to graduation. This serves the purpose of exposing the potential urban designer to the realities of project administration, community involvement and political, social and economic decision-making. In cases where the candidate can demonstrate relevant prior experience, the summer internship requirements may be waived.

The urban design program has a basic minimum requirement of 48 semester hours or credits. Twelve of these credits are required to be taken in city planning courses at the Department of City and Regional Planning in Chapel Hill, while another 12 are required as studio courses at the School of Design. The remaining 24 credits in the basic minimum program are divided among path electives, free electives and independent research. A further six credits in basic design are required of candidates from non-design backgrounds, thus making a minimum total of 54 credit hours for these candidates.

THE GRADUATE PROGRAM IN URBAN DESIGN
Degree to be awarded: Master of Urban Design

INTEGRATIVE CORE (Design) 12

UD 501	Introductory Problems in Urban Design
UD 502	Urban Design Workshop I
UD 601	Urban Design Workshop II

INTERDISCIPLINARY CORE (Planning)* 12

PL 106	Introduction to Urbanism and Planning
PL 127	Transportation & Technological Systems
PL 215	Theory of Planning
PL 235	Land Use Systems

*Notes: (a) or approved equal.
(b) taken at the Department of City and Regional Planning at UNC-CH.

URBAN DESIGN ELECTIVES (available within the Department of Architecture)** 24

UD 520	Theory and Principles of Urban Design
UD 590	Special Topics in Urban Design I
UD 602	Advanced Problems in Urban Design
UD 610	Theory of Urban Form
UD 690	Special Topics in Urban Design II
ARC 501	Adv. Architectural Design I
ARC 502	Adv. Architectural Design II
ARC 551	Research Methods in Architecture
ARC 601	Adv. Architectural Design III
ARC 602	Adv. Architectural Design IV
ARC 691	Special Topics in Architecture
ARC 692	Special Topics in Architecture

**Note: for the full range of electives in City Planning, consult the Record of the University of North Carolina at Chapel Hill.

TOTAL CREDIT HOURS 48



VISITING LECTURERS SINCE 1948

THOMAS CHURCH, landscape architect. **WILLIAM W. CAUDILL**, architect. **EERO SAARINEN**, architect. **R. BUCKMINSTER FULLER**, inventor, engineer, designer. **CLARENCE STEIN**, authority on planning and housing. **ERIC MENDELSOHN**, architect and designer. **FRED SEVERUD**, structural engineer. **LEWIS MUMFORD**, author, critic, planner. **FRANK LLOYD WRIGHT**, architect. **NAUM GABO**, sculptor. **JOSEPH HUDNUT**, former Dean of Harvard School of Design. **JOHN LYON REID**, architect, school planner. **DOUGLAS HASKELL**, writer, critic. **CHRISTOPHER TUNNARD**, city planner. **ALDEN B. DOW**, architect. **LUDWIG MIES VAN DER ROHE**, architect. **PIETRO BELLUSCHI**, Dean of School of Architecture, Massachusetts Institute of Technology. **FELIX J. SAMUELY**, engineer. **WILLEM DUDOK**, architect. **HIDEO SASAKI**, landscape architect, professor at Harvard. **ALEXANDER ARCHIPENKO**, sculptor. **WALTER GROPIUS**, architect. **GEORGE NELSON**, architect, furniture designer. **ROBERT ROYSTON**, landscape architect. **GEORGE BOAS**, philosopher, esthetician. **CHARLES EAMES**, architect, designer. **LAWRENCE HALPRIN**, landscape architect, teacher. **ROBERT B. NEWMAN**, acoustical engineer. **BRIAN HACKETT**, landscape architect, teacher. **MARCEL BREUER**, architect, designer. **ROBERTO BURLE MARX**, landscape architect. **PAUL WEIDLINGER**, engineer. **PIER LUGI NERVI**, engineer. **MARIO G. SALVADORI**, engineer. **GARRETT ECKBO**, landscape architect, teacher. **EDUARDO TORROJA**, engineer. **JOHN E. ARNOLD**, educator. **DAN KILEY**, landscape architect. **GUILIO PIZZETTI**, engineer. **SIR HERBERT READ**, author, critic. **O'NEIL FORD**, architect. **WALTER A. NETSCH, JR.**, architect. **H. TH. WIJDEVELD**, architect. **LOUIS I. KAHN**, architect. **ERNEST J. KUMP**, architect. **HEINZ VON FOERSTER**, research cyberneticist. **G. E. KIDDER SMITH**, architect, photographer. **WAYNE ANDREWS**, professor, Wayne State University. **JOHN M. JOHANSEN**, architect. **HOYT SHERMAN**, professor, Ohio State University. **MAURICIO LASANSKY**, printmaker, professor. **RICHARD GENSERT**, engineer. **FELIX CANDELA**, architect, **IVAN CHERMAYEFF**, graphic designer. **JAMES MARSTON FITCH**, engineer, author. **ROMALDO GIURGOLA**, head of Department of Architecture, Columbia University. **IRVING GROSSMAN**, architect. **JAMES STIRLING**, architect. **RUDOLPH ARNHEIM**, art historian and orientalist. **THEODORE BOWIE**, art historian. **LANCELOT WHYTE**, philosopher of form. **YONA FRIEDMAN**, architect, planner. **PAUL RUDOLPH**, architect. **PAOLO SOLERI**, architect. **ARTHUR C. CLARKE**, author, scientist.

THE STUDENT PUBLICATION OF THE SCHOOL OF DESIGN, established in 1950, is maintained by student fees, the sale of issues, and donations. All phases of publication work—collection of material, editing, design, and circulation—are managed by students. Editors are encouraged to continue a tradition of relevance and quality but are otherwise unrestricted. Such an attitude has resulted in the presentation of a variety of topics of interest to professionals, educators, and students in design-related fields. Circulation is worldwide.



COURSE DESCRIPTIONS

ARC 300. HISTORIC ARCHITECTURE RESEARCH 2 FS. Prerequisite: DN 202. Research and the recording of sites, monuments, buildings or artifacts of historical interest.

ARC 331. ENVIRONMENTAL BUILDING SYSTEMS. 2(1-3) FS. The establishment and development of the concept of building as an environmental control mechanism, i.e., as a barrier between the natural environment and the activities and human needs to be accommodated. A description of environmental factors upon which the science of building construction is based. An investigation of basic building materials, their properties, processes of production and principal systems of enclosure. Consideration will also be given to economic factors and legal controls.

ARC 332. ENVIRONMENTAL CONTROL SYSTEMS. 2(1-3) FS. A study of the basic systems used to control the environment: air, heat, light, sound, and sanitation. Emphasis placed upon the principles and the conceptual understanding of each system through comparative analysis of the system's characteristics and the investigation of the effect of each system on architectural form.

ARC 400. INTERMEDIATE ARCHITECTURAL DESIGN (SERIES). 4(1-9) FS. Prerequisite: DN 202, or equivalent, or departmental approval. Design investigations aimed at the development of an understanding of the major issues confronting the contemporary architect and at the expanding of problem-solving abilities in architectural design. Students must complete four semesters to satisfy this requirement, selecting from a number of vertically organized workshops which offer on an optional basis a wide range of program emphases.

ARC 431. INDUSTRIALIZED SYSTEM BUILDING. 2(1-3) FS. Prerequisite: ARC 331. An analytic study of mass produced building systems to examine the implications, limitations and potentials of this type of architecture. The analysis is to include design, factory processes, distribution methods, fabrication, erection, and economic analysis.

ARC 432. CLIMATE CONTROL SYSTEMS AND DESIGN. 2 (1-3) F. Prerequisite: ARC 332. Further study of the mechanical systems used for heating, cooling, ventilating, and conditioning the interior of buildings. The analysis and design of the climate control system for a small scale building will be undertaken in this course.

ARC 433. ILLUMINATION DESIGN. 2(1-3) S. Prerequisite: ARC 332. Examination of interior and exterior lighting design, including vision, color, sources, and control.

ARC 441 DESIGN METHODS. 2 (2-0) FS. Description, comparisons and testing of the various methods which are available in architectural design with emphasis on problem-solving techniques. The method is primarily a means for integrating rational analysis and creative thought in the design act.

ARC 491. SPECIAL PROJECTS IN ARCHITECTURE. 1-4 FS. Prerequisite: Junior standing. Investigation of special projects by inter-disciplinary groups or individuals in various phases of architecture.

ARC 495. SPECIAL PROBLEMS IN ARCHITECTURE. 1-3 FS. Prerequisite: Junior standing. Special problems in various aspects of architecture developed under the direction of a faculty member on a tutorial basis.

ARC 499. ARCHITECTURE SEMINAR. 1-3 FS. Prerequisite: Departmental approval. Presentations and discussions of special areas of interest in architecture and the allied design fields.

ARC 501, 502. ADVANCED ARCHITECTURAL DESIGN I, II. 6(3-9) Prerequisites: (501) 16 credit hours of ARC 400 or equivalent; (502) ARC 501. Advanced studies in architectural problems having complex functional, social and economic implications; special emphasis is given to problem identification, program formulation and application of advanced design methods.

ARC 511. PROFESSIONAL PRACTICE I. 2(2-0) F. Prerequisite: Fourth year standing. The evolution of architecture as a modern practical profession; obligations of the profession to society and to itself; the legal and ethical position of the architect in practice; comparative study of documents; the architect's working organization; emerging techniques of office practice.

ARC 512. PROFESSIONAL PRACTICE II. 2(2-0) S. Prerequisite: Fourth year standing. Continuing study of standard documents and emerging techniques of practice, with emphasis on the principles and improved techniques of writing construction specifications; interrelationships of The Contract Documents; comparative study of techniques for controlling competitive bidding.

ARC 521, 522. ARCHITECTURAL STRUCTURES I, II. 3 (3-0). Prerequisites: (521) CE 339; (522) ARC 521. Gravity and non-gravity loads on structures; comparative behavior of structural materials; comparative behavior of simple structural systems; approximate and exact analysis procedures as applied to systems; principles of approximate and exact design in timber, steel and reinforced concrete; architectural/structural/mechanical compatibility in systems; basic principles of foundation analysis and design.

ARC 531, 532. ADVANCED BUILDING TECHNOLOGY I, II. 2(1-3) FS. Prerequisites: ARC 331, ARC 332. A synthesis of studies in building science undertaken in previous courses. Material assemblies in practical applications, dimensional characteristics of mechanical and construction systems for buildings and special projects in selected areas of building science.

ARC 551. RESEARCH METHODS IN ARCHITECTURE. 2 (2-0) FS. Prerequisites: Graduate standing. Seminar on the quantitative methods from various disciplines towards the scientific inquiry of knowledge. Analysis of techniques and instruments appropriate in solving problems involving scaling, measurement, modeling and gaming within the scope of the physical environment.

ARC 601,602. ADVANCED ARCHITECTURAL DESIGN III, IV. 6(3-9) FS. Prerequisites: (601) ARC 502; (602) ARC 601. Continuing advanced studies in architectural design in which are synthesized all previous design experience through in-depth investigations of significant environmental problems. Consultation with planners and environmental specialists is extensive. A terminal project is developed in the spring semester.

ARC 621, 622. ARCHITECTURAL STRUCTURES III, IV. 2 (2-0) FS. Prerequisites: (621) ARC 522; (622) ARC 621. Special projects in study of complex structural systems. Cable structures, membranes, thin shells, folded plates, arches, vaults, space frames; studies of construction techniques, prefabrication, structural behavior and stress analysis through model work and simplified calculation procedures.

ARC 691, 692. SPECIAL TOPICS IN ARCHITECTURE. 1-6 FS. An investigation of special topics in architecture of particular interest to advanced students under the direction of a faculty member on a tutorial basis. Credits and content will vary with the needs of students.

DN 101, 102. ENVIRONMENTAL DESIGN I, II. 4(1-9) FS. Prerequisite: (101) Major in School of Design or consent of the Dean. (102) DN 101. Investigation of the sensory environment as a design determinant. Emphasis centered on individual discovery by the student who must function in problem formulating and problem-solving processes. Course designed to develop technical skills simultaneously with development of conceptual models.

DN 111, 112. PERCEPTION AND COMMUNICATION I, II. 2(1-3) FS. Prerequisite: (111) Major in School of Design or consent of the Dean. (112) DN 111. Studies designed to increase perceptual awareness and communication skills through exercises in various communications media.

DN 121, 122. HISTORY OF DESIGN I, II. 3(3-0) FS. Prerequisite: (122) DN 121. A critical study of the related design fields from prehistoric periods to the modern era with reference to the social, political and technological movements which affected their development.

DN 201, 202. ENVIRONMENTAL DESIGN III, IV. 4(1-9) FS. Prerequisites: (201) DN 102; (202) DN 201. Introduction to the disciplines of architecture, landscape architecture and product design through environmental studies and investigation of materials and processes. Emphasis placed on organizing and solving design problems.

DN 211, 212. VISUAL COMMUNICATION I, II. 2(0-6) FS. Prerequisites: (211) DN 112; (212) DN 211. Visual communication processes as they support design activities. Two and three-dimensional studies as related to conceptual and definitive aspects of the design process. Exercises aimed at developing a mastery of both technical and non-technical methods of visual communication.

DN 311, 312. ADVANCED VISUAL LABORATORY I, II. 2-4 (0-6) FS. Extension of problems introduced in first and second year drawing on a more advanced level. Problems will involve the human figure and its environment and investigate techniques to increase the ability of the student to express his ideas in varied forms.

DN 411, 412. ADVANCED VISUAL LABORATORY III, IV. 2-4(0-6) FS. Advanced problems in the fields of painting, sculpture, graphics and photography.

DN 421, 422. HISTORY OF DESIGN III, IV. 3(3-0) FS. Prerequisite: DN 122. Specialized historical studies in design fields.

DN 511, 512. ADVANCED VISUAL LABORATORY V, VI. 2 (0-6) FS. Prerequisite: Graduate standing. Advanced experimental studies in visual phenomena related to design.

DN 541. SEMINAR ON IDEAS IN DESIGN. 2(2-0) FS. Prerequisite: Graduate standing. An examination of aesthetics and the relationships of philosophic thought to design.

DN 611, 612. ADVANCED VISUAL LABORATORY VII, VIII. 2(0-6) FS. Prerequisite: Graduate standing. Advanced experimental studies in visual phenomena related to design.

LAR 201. FUNDAMENTALS OF LANDSCAPE DESIGN 3 (1-6) FS. Introductory exercises in landscape design. Site development and organization as related to climate, topography and prevalent social criteria.

LAR 211. INTRODUCTION TO LANDSCAPE ARCHITECTURE. 3(3-0) FS. A survey course of the profession of landscape architecture for majors in the related fields of RPA, CE, FOR and HS, including the function, responsibilities and training of the landscape architect; the design process (criteria, approaches, sequence), office procedures and practices; formulation; presentation and interpretation of contract documents; and the relationship of landscape architecture to related fields.

LAR 312. SITE PLANNING. 3(1-6) S. Prerequisite: Junior standing. The course is an introduction into the problems of small scale design, and technical operations such as grading, alignment, controls will be covered.

LAR 321, 322. LANDSCAPE MATERIALS I, II. 3(1-4) FS. Prerequisites: Science electives. A professional option for those students wishing to concentrate on small scale physical design. The course will cover identification and properties of materials. Exercises in design will stress implementation and use of materials for particular situations.

LAR 400. INTERMEDIATE LANDSCAPE ARCHITECTURE DESIGN (SERIES). 4(1-9) FS. Prerequisite: DN 202, or equivalent, or departmental approval. The LAR 400 Series is intended to permit students a flexibility in scheduling. The courses will cover small scale design, urban landscape architecture, public and institutional design. Each course will be conducted as a workshop/studio to study the problems of project organization, design and execution. The course may be scheduled four times.

LAR 411, 412. LANDSCAPE TECHNOLOGY. 3(1-6) FS. Prerequisite: Junior standing. Techniques and procedures of construction drawing. Contracts, specifications, and office practices. Consolidation of previous technical course work by case study projects of various scales.

LAR 491. SPECIAL PROJECTS IN LANDSCAPE ARCHITECTURE. 2-4 FS. Prerequisite: Senior standing and 3.0 G.P.A. The course is intended as a special projects framework for advanced undergraduates to do research on a tutorial basis. The course may be scheduled two times.

LAR 501, 502. LANDSCAPE DESIGN I, II. 6(3-9) FS. Prerequisite: Graduate standing. Regional research and analysis. Social criteria of urban and regional design. Transportation systems, land use determination and the design of large scale environmental complexes. Open to graduate students in related fields. Evaluation of non-majors based on contribution of their discipline to group effort.

LAR 503. REGIONAL DESIGN WORKSHOP I. 3(0-9). Prerequisite: Graduate standing. Study of current literature in regional design and planning with emphasis on extracting a number of premises, theoretical structures and information handling techniques as a basis for seminar discussions and activities.

LAR 504. REGIONAL DESIGN WORKSHOP II. 3(0-9). Prerequisite: Graduate standing. Case study projects designed to explore the relationship between the resource base and the development intentions with the purpose of evolving clear statements of the problems involved and their susceptibility to solution. Problem situations will be developed from differing viewpoints and levels of complexity.

LAR 512. PHYSICAL SYSTEMS. 3(2-2). Prerequisite: Graduate standing. Analysis of physical systems and methods of determining relationships between systems with particular reference to natural systems, managed resource systems, development systems and their relationship to development objectives.

LAR 521. INTRODUCTION TO REGIONAL DESIGN. 3(2-2). Prerequisite: Graduate standing. A perspective of the measures man has taken to ensure his relationship to the general environment. Ecologic determinism, economic and political functionalism and aesthetic movements will be developed in an historical context.

LAR 591, 592. SPECIAL PROJECTS. 4(2-6) FS. Prerequisite: Graduate standing. Student-evolved projects with emphasis on utilization and expansion of technical processes and techniques to reinforce design solutions. Introduction and investigation of experimental methodology. Development of student evolved interest in specific areas. Open to graduate students in related fields. Evaluation of non-majors based on their contribution of their discipline to group effort.

LAR 603. REGIONAL DESIGN III. 3(0-9). Prerequisites: LAR 501, 502. Course will be directed at a synthesis of information handling methods and environmental design theory within an institutional context. The procedure will be to clarify environmental problems, generate alternative solutions to problems, illustrate the physical implications of alternatives, and evaluate the alternatives on the basis of their capacity to be implemented through established institutions and agencies. The course will be structured around existing situations which have the capacity to be abstracted into prototypical situations.

LAR 604. REGIONAL DESIGN IV. 9(0-18). Prerequisites: LAR 503, 504, 603. Terminal project for regional design degree students. Projects will be selected and developed by individual students under the direction of his major and minor professors.

LAR 611. PHYSICAL DESIGN POLICY. 3(2-2). Prerequisites: LAR 501, 502. Course will be directed at a detailed examination of public policy regarding control of the physical environment. Emphasis will be focused on policies which are directed at control of land use, such as road, utilities, water, etc., and their relationship to policies regarding less tangible commodities such as public health, education, recreation, etc.

LAR 691. DEGREE SEMINAR. Prerequisites: LAR 503, 504, 603; Co-requisite: LAR 604. Each student in his terminal semester and in conjunction with his case study will prepare and submit to his committee a presentation on the relevance of his minor to the design process with particular reference to his case study.

PD 321, 322. COLLOQUIUM I, II. 1(1-0) FS. A survey of the historically evolving passive and active interaction of the arts, technological, sociological and psychological forces. Lectures by professional authorities (faculty and guests) and discussions under their guidance. Required selected reading and field experience.

PD 400. INTERMEDIATE PRODUCT DESIGN (SERIES). 4 (3-6) FS. Prerequisite; DN 202, or equivalent, or departmental approval. This group of courses shall be concerned with various social/economic age groups, various forms and rates of production, and various natural and synthetic materials.

PD 411, 412. APPLIED PHYSICAL PRINCIPLES. 3(2-2) FS. Prerequisite: Intermediate Design standing. Various experiments applying physical principles to product design and development.

PD 421, 422. COLLOQUIUM III, IV. 1(1-0) FS. Continuation of Colloquium I, II (PD 321, 322), treating various phases of the subject in depth. Special emphasis on communication, communication systems and media of communication. Faculty, guest lecturers, discussion and "field" experience. Required selected reading.

PD 431, 432. OFFICE AND INDUSTRIAL PRACTICE I, II. 1(1-0) FS. Study of the ethics, organization and procedures of professional product design practice; patent law.

PD 440. INTERMEDIATE VISUAL DESIGN (SERIES). 4(3-6) FS. Prerequisite: DN 202, or equivalent, or departmental approval. Intermediate investigations of the visual environment through the agency of various materials and processes leading to professional competence in Visual Design.

PD 490. INTERMEDIATE SPECIAL PROJECTS (SERIES). 2 (1-3) FS. Special projects guided by various faculty specialists involved in areas supplementary to product design and visual design option.

PD 501. PRODUCT DESIGN V. 7(3-12) F. Prerequisite: PD 400, or graduate standing. Product design and development for unlimited production systems that would be produced additively of synthetic materials for national class and specific age groups.

PD 502. PRODUCT DESIGN VI. 7(3-12) S. Prerequisite: PD 400, or graduate standing. Product design and development for unlimited production systems that would be produced additively of synthetic materials for international class and specific age groups. (Individually selected problems.) Note: It shall be assumed that the program is cumulative and that these statements are problem parameters, exclusive of communication requirements.

PD 511, 512. MATERIALS AND PROCESSES V, VI. 2(1-3) FS. Prerequisite: Graduate standing. Advanced studies in mass production processes and their influence on design. Emphasis placed on material search and process selection in relation to cost, function, human factors, form, finishes and joining methods, as indicated by the current design projects in which the students are involved.

PD 532. OFFICE AND INDUSTRIAL PRACTICE II. 1(1-0) FS. Prerequisite: PD 432, or graduate standing. Advanced studies and procedures of professional product design practice, product and industrial planning, and patent law.

PD 541, 542. ADVANCED VISUAL DESIGN I, II. 6(3-9) FS. Prerequisites: ARC 400, LAR 400, PD 400, PD 440; waiver of prerequisites is at the discretion of the instructor. Application of previous studies in design and visual communication to a wide variety of visual problems presented by our physical environment.

PD 590, 591. SPECIAL PROJECTS. 3(1-6) FS. Special projects of an interdisciplinary nature, guided by various faculty specialists involved in areas supplementary to product design. Emphasis placed on latest technological development of new materials. Also emphasis on concept of new useful designs for the mass market. The production aspects of products such as materials, processes, functions, human factors, form, sales appeal, finishing and assembly methods and packaging will be stressed in special project designs.

PD 601, 602. ADVANCED PRODUCT DESIGN VII, VIII. 6(0-18). Prerequisites: PD 501, 502. Continuation of PD 501, 502 on advanced scale. Unlimited production systems designed with object(s) possibilities produced additively of new synthetic materials utilizing new molecular joining for international class and age groups.

PD 631, 632. ADVANCED CONCEPTS IN PRODUCT ENGINEERING. 3(3-0). Prerequisite: PD 502. Group investigation of advanced concepts in product design with emphasis on engineering.

UD 501. INTRODUCTORY PROBLEMS IN URBAN DESIGN. 3(0-6) F. Prerequisite: Graduate standing. Introduction to descriptive analysis of physical and socio-economic phenomena of urban environments, and application of research methods in the definition and resolution of urban design problems.

UD 502. URBAN DESIGN WORKSHOP I. 3(0-6) S. Prerequisite: UD 501. Complete synthesis of design factors influencing an environmental system or an urban complex.

UD 520. THEORY AND PRINCIPLES OF URBAN DESIGN. 3(3-0) S. Prerequisite: Graduate standing. An examination of the nature of the design process in urban environments with special emphasis on contemporary theory and practice.

UD 590. SPECIAL TOPICS IN URBAN DESIGN I. 1-6 FS. Prerequisite: Fourth year standing. This course provides a flexible means for investigation into areas of special interest related to urban design. It is intended primarily to encourage independent study and research.

UD 595. ENVIRONMENTAL PERCEPTION. 3(3-0) S. Prerequisite: Graduate standing. The course is designed to acquaint the student with the theories and research on the perception of urban environments. Emphasis is placed on the visual attributes as well as user perceptions of the environment with a focus on the structuring of research to explore these dimensions.

UD 601. URBAN DESIGN WORKSHOP II. 6(0-12) F. Prerequisite: UD 502. Analysis of complex environmental problems ranging in scope from area redevelopment to new towns design and Model Cities programs.

UD 602. ADVANCED PROBLEMS IN URBAN DESIGN. 6 (0-12) S. Prerequisite: UD 601. Investigation of current urban design problems with special emphasis on individual research and investigation.

UD 610. THEORY OF URBAN FORM. 3(3-0) S. Prerequisite: Graduate standing. Examination of interdisciplinary theories of urban structure and evolution with about one-third of the time devoted to historic theory, and two-thirds to current theory and research.

UD 690. SPECIAL TOPICS IN URBAN DESIGN II. 1-6 FS. Prerequisites: Interdisciplinary Core and Integrative Core in Urban Design. A course designed to allow for independent study and research in areas of special interest for graduate students in Urban Design only.



DESIGN RESEARCH

Faculty research in the School of Design is highly diverse in the subject areas investigated and in the methods employed. Design research activity tends to reflect significant issues relative to the physical environment as well as the particular attitudes of individual faculty members. The following research studies, many initiated under grants from the Faculty Research and Development Fund, represent a cross-section of recent research activity in the School of Design.

A Conceptual Model of Environmental Design Vernon F. Shogren, Associate Professor of Architecture.

Auto-tutorial Programmed Training Devices for Design Educators Don A. Masterton, Associate Professor of Product Design.

The Design and Development of a Unique High Performance, Low Cost Vehicle for the 18-25 Year Old Consumer Don A. Masterton, Associate Professor of Product Design.

Cylindrical Perspective: Theory, Development, and Application Fred Eichenberger, Associate Professor of Product Design

Design Methodologies in the Planning and Design Disciplines Peter Batchelor, Associate Professor of Urban Design.

The Garden City Concept of Urban Form Peter Batchelor, Associate Professor of Urban Design.

Family Attitudes and Housing Preferences Henry Sanoff, Associate Professor of Architecture.

Social Perception of the Ecological Neighborhood Henry Sanoff, Associate Professor of Architecture.

Residential Patterns of Racial Change Henry Sanoff, Associate Professor of Architecture; Mohan Man Sawhney, Associate Professor of Sociology; Henry King Burgwyn, Research Assistant; George Ellinwood, Research Assistant.

Form Investigation of Housing for Seasonal Agricultural Workers in North Carolina Roger H. Clark, Assistant Professor of Architecture.

Industrialized Residential Construction Systems Michael G. Hancock, Assistant Professor of Architecture.

Problem-Solving Tools in Design Lynne Meyer Gay, Assistant Professor of Architecture.

The Generation of Space Filling Systems Duncan Stuart, Professor of Design; Jay Randle, Research Assistant.

FACULTY

Donald Warren Barnes, Jr. Assistant Professor of Architecture. Teaching Building Technology and Special Projects. A.B. in Mathematics, Mercer University, 1950. M.Arch., University of California, 1968. Teaching Assistant, University of California, 1967-68. Associate Member, N.C. Chapter, American Institute of Architects. Faculty Adviser of Student Chapter, American Institute of Architects. Architectural Consultant in lighting, electrical, acoustical, plumbing and HVAC systems. Associate, Illuminating Engineering Society.

Peter Batchelor. Architect. City Planner, Urban Designer. Associate Professor of Urban Design and Director of Urban Design Program. Teaching Advanced Architectural Design and Urban Design. B.Arch., University of British Columbia; M.Arch., and M.C.P., University of Pennsylvania; Doctor of Philosophy in City Planning, University of Pennsylvania (pending). Director, Urban Design Research Group, Inc. Member of American Institute of Architects and American Institute of Planners. Active member of Royal Architectural Institute of Canada, 1963-65. B.C.E. Fellow (Canada), 1961-62; A.I.A. Langley Fellow, 1964, Canada Council Fellow, C.M.H.C. Fellow, 1965-68. Lecturer, University of British Columbia, 1963-64. Instructor in Civic Design, University of Pennsylvania, 1966-68. Eight years professional practice in architecture and planning since 1951. Author of "Horizontal Multiple Housing" in the **Journal of the *Royal Architectural Institute of Canada;*** "A Creative Dance Centre" in ***Impulse Magazine;*** and "The Determinants of Urban Form", from V.P.I. conference at Blacksburg in 1967 with same title; "Urban Infrastructures Workshop I—Raleigh 2000," ***North Carolina Architect,*** 1969; "The Garden City Concept of Urban Form," ***Journal of Society of Architectural Historians,*** 1969; "Citizen Participation in Design," ***North Carolina Architect,*** 1970.

George L. Bireline, Jr. Painter. Associate Professor of Design. Teaching Environmental Design and Perception and Communication. B.F.A., Bradley University, 1949. M.A.C.A., University of North Carolina at Chapel Hill, 1963. Ford Foundation Program for the Visual Arts Purchase Award from national jury, 1959. 1964: One Man Show, Andre Emmerich Gallery, New York City; Los Angeles County Museum of Art; Walker Art Center; The Art Gallery of Toronto; illustration, Post Painterly Abstraction Catalog. 1965: One Man Show, Andre Emmerich Gallery, New York City; The Rockford 50 States Art Exhibition, Burbee Art Museum, Rockford, Illinois; Artist Award; Optical Painting, Art Alliance, Philadelphia, Pennsylvania; Contemporary American Painting and Sculpture, University of Illinois catalog illustration. 1966: First Purchase Award, The Hunter Gallery Annual, Chattanooga, Tennessee. 1967: Decade, 7, Contemporary American Art, 1967 Southern Illinois University catalog; The Fourth International Young Artists Exhibition, U.S.A.; Tokyo, Japan, catalog illustration. 1968: One Man Show, Andre Emmerich Gallery, New York City; recipient of John Simon Guggenheim Memorial Foundation Fellowship to assist research and artistic creation.

Eugene Paschal Brantly. Structural Engineer. Assistant Professor of Architectural Structures. Teaching Architectural Structures. B.S. in Civil Engineering, N.C. State University, 1955; M.S. in Engineering, University of Illinois, 1956; Ph.D., in Structural Engineering, (Pending), Stanford University; Engineering practice with Rust Engineering, Inc., 1956-58, Ezra Meir and Assoc., 1958-59, and John Blume & Assoc., 1964-65; National Science Foundation Fellow. Assistant Professor of Civil Engineering, N.C. State University, 1959-63, 1966-68. Assistant Professor of Engineering and Director of Operations Program, N.C. State University, 1968-70. Private structural consultant, 1959-63, 1966- , the latter period in the area of computer analysis of structures.

Robert Paschal Burns, Jr. Architect. Professor of Architecture and Head of the Department of Architecture. Teaching Advanced Architectural Design. B.Arch., N.C. State University, 1957; M.Arch., Massachusetts Institute of Technology, 1962. Member of the American Institute of Architects. Secretary of the Association of Collegiate Schools of Architecture. A.I.A. School Medal and N.C.A.I.A. Book Award, 1957. 44th Paris Prize in Architecture, the Lloyd Warren Fellowship for 18 months of travel in Europe and North America, 1957. Architectural work on independent projects and in North Carolina architectural firms. Award of Merit, co-winner N.C.A.I.A., 1962. Award of Merit, co-winner, National A.I.A. Homes for Better Living, 1962. Chief designer in the office of Eduardo Catalano, Architect, Cambridge, Mass., 1962-65. Award of Merit, N.C.A.I.A. Honor Awards, 1969. Juror, A.I.S.C. Awards of Excellence Competition, 1970. Principal in firm, Envirotek, Inc.

Roger H. Clark. Architect. Assistant Professor of Architecture. Teaching Intermediate Architectural Design and Building Technology. B.S. in Arch., University of Cincinnati, 1963; M.Arch., University of Washington, 1964. Taught Architectural Design at the University of Virginia, 1963-69. Professional Associate Member of the American Institute of Architects and member of the Association of Collegiate Schools of Architecture, International Relations Committee, 1968- . Tribunal Medal in Architecture and runner-up Book Award to the A.I.A. School Medal, 1963. Unit Masonry Graduate Scholarship, 1964. Research into objective analysis of behavior in architectural spaces; grant from Princeton University A.I.A. Research in Education to study architectural research; computer graphics study grant. Current research into disposable/short term kinetic architecture. Wrote and produced thirty minute educational television program, "Education in Architecture." Architectural work in various Ohio and Virginia architectural firms. Partner in firm, The Architectural Team, Charlottesville, Virginia. Article published in ***A.I.A. Journal.*** Co-author of book, ***Kinetic Architecture,*** 1970.

Joseph H. Cox. Painter. Professor of Design. Teaching Visual Communication and Advanced Visual Laboratory. B.F.A., John Herron Art Institute, 1938. M.F.A., University of Iowa, 1941. Teaching experience: University of Iowa, University of Tennessee, University of Florida. Exhibited nationally and regionally and represented in several museums and private collections. Prizes in the Indiana Artists Show, Fourth Memphis Biennial, Painting of the Year Exhibition, Atlanta Southeastern Exhibition, Atlanta. Purchase Awards, North Carolina Annual; Mint Museum, Charlotte; Norfolk Museum of Art. Recipient of a Tiffany Scholarship in 1941. Murals in Indiana, Michigan, Tennessee, and North Carolina; most recent an anodized aluminum on the Branch Banking and Trust Company, Raleigh, North Carolina, and a thirty-six feet by eight feet sculptural aluminum mural using colored light in the Southern National Bank in Lumberton, North Carolina.

Russell Drake. Designer. Assistant Professor of Product Design. Teaching Intermediate Visual Design, Visual Communication and Perception and Communication. Studied: Art Institute, Chicago; Academie Andre Lhote, Paris; Institute of Design, Illinois Institute of Technology, Chicago; B.P.D., N.C. State University, 1969. M.P.D., N.C. State University, 1970. Graduate work in Environmental Perception. Professional work: Graphic Design and Production. Research: Eastern Art and Psychology, Painting, and Color and Light.

Fred Eichenberger. Industrial Designer. Associate Professor of Product Design. Teaching Environmental Design, Perception and Communication, and Visual Communication. B.F.A. with Honors, Pratt Institute, 1953. Further study at New York University and the University of Cincinnati. Taught industrial design at the University of Cincinnati 1953-63. Visiting critic: Texas A & M University and the University of Cincinnati. Principal research activities: the development of low-cost rehabilitation equipment for United Cerebral Palsy Association, the Graphic Display of Complex Information in Collaboration with Professor Duncan R. Stuart for the National Institute of Mental Health, and the Experimental Uses of Offset-Lithography. Awarded a grant, 1969-70, by the National Endowment for the Arts to complete a study of cylindrical perspective systems. Recent publications include "The Mass Production of Unique Items Revisited," ***Vol. 19:1, The Student Publication of the School of Design.***

Donald H. Ensign. Landscape Architect. Assistant Professor of Landscape Architecture. Teaching Environmental Design, Visual Communication, Special Projects. B.F.A. in Landscape Architecture, Utah State University, 1963. M.L.A., University of Michigan, 1968. Teaching experience: Utah State University, 1962-66; University of Michigan, 1966-67. Professional experience: Leon Frehner Associates, Salt Lake City, Utah; Richard R. Wilkinson Associates, Ann Arbor, Michigan. Research activities: Community in Transition; North American Cross Sections; Regional Transportation and Environmental Quality; A Modular System for the Arrangement of Elements along Roadways. Publications: Consideration and Alternatives for Married Student Housing; Program Development for Expansion of Affiliated Associated Housing Facilities; co-author: Urban Design for Ann Arbor; The Huron River Valley. Associate Member, American Society of Landscape Architects.

Vincent M. Foote. Product Designer. Assistant Professor of Product Design and Acting Head of the Department of Product Design. Teaching Intermediate Product Design and Advanced Product Design. B.S. in Design, University of Cincinnati, 1960. Professional experience: Cincinnati Milling Machine, Designer; Baermann Associates, Inc., Senior Associate; Principal in Design Workshop, Inc. Principal research activities: Material Feasibility as Applied to Furniture Production; Mouth-to-Mouth Resuscitation and External Cardiac Compression.

Lynne Meyer Gay. Research Architect. Assistant Professor of Architecture. Teaching Environmental Design and Group Problem Solving. B.A. in Fine Arts, University of Colorado, 1961; M.Arch., University of California, Berkeley (pending). Several articles and research projects published. American Institute of Architects Education Research Project and National Science Foundation grants to assist research. Co-author: **Creative *Problem Solving in Architecture: A Pilot Study,*** 1967; and ***Creative Problem Solving in Architecture,*** Vol. II, ***Training Materials.***

Michael G. Hancock. Architect. Assistant Professor of Architecture. Teaching Intermediate Architectural Design, Building Technology, and Design Methods. B.A. in Architecture, University of Sheffield, England, 1962. Associate of the Royal Institute of British Architects. Senior designer with James A. Roberts of Birmingham, England, 1962-65. Worked on large-scale central redevelopment schemes. Lecturer in the Department of Architecture and Civic Planning, University of Nottingham, 1965-67. Taught architectural design, uses of materials, and industrialized building methods. Currently researching into variable housing systems and self-contained regenerative service units. Organizer of ACSA Regional Conference, N.C. State University, April, 1969.

Gene Hedge. Designer and Painter. Assistant Professor of Product Design. Teaching Product Design, Visual Design, Special Projects. B.S. in Visual Design, Illinois Institute of Technology, Chicago, 1954. Professional practice: Charles I. Davis Typography, Chicago; ***The Village Voice,*** New York City; William Ginsberg, Architect, New York City. Teaching experience: McBurney School, New York City. Independent work in painting and collage. Exhibited: Poindexter Gallery, New York; Allan Frumkin Gallery, Chicago, B.C. Hollard Gallery, Chicago; Stable Gallery, New York; Exhibition Momentum, Chicago; Pittsburgh International, Carnegie Institute; Society for Contemporary Art, Art Institute of Chicago; Art in America—New Talent, American Federation of Art, New York; Collage in America, American Federation of Art, New York; Contemporary American Painting, Whitney Museum, New York; American Collage, Museum of Modern Art, New York.

Randolph T. Hester, Jr. Landscape Architect. Assistant Professor of Landscape Architecture. Teaching Regional Design Workshop and Physical Design Policy. B.L.A., N.C. State University, 1968; B.A. in Sociology, N.C. State University, 1969; M.L.A., Harvard, 1969. A.S.L.A. Certificate of Merit, 1968; N.C.S.E. A.S.L.A. Book Award, 1968; Phi Kappa Phi; Blue Key; Golden Chain. Associate, American Society of Landscape Architects. Work in landscape architecture for Richard A. Moore, Raleigh and Lewis Clarke Associates, Raleigh. Consultant, Chavis Heights Community Action Center, Raleigh, 1968. Urban Designer, Community Development Center, Cambridge, Mass., 1968-present. Assistant Professor of Landscape Architecture, Pennsylvania State University, 1969-70.

Henry L. Kamphoefner. Administrator and Architect. Professor of Architecture and Dean of the School. Teaching Seminar on Ideas in Design. Attended Morningside College. B.S. in Arch., University of Illinois, 1930. M.S. in Arch., Columbia University, 1931. Certificate of the Beaux Arts Institute of Design, 1932. Honorary Doctor of Fine Arts, Morningside College, 1967. Professor of Architecture at the University of Oklahoma, 1937-48. Professor of Architecture, University of Michigan, summer 1948. Alternate on the 32nd Paris Prize in Architecture, and the 1939 Schermerhorn Fellowship. Winner, Edward Langley Scholarship. Private practice in Iowa. Author of many articles in architectural journals and magazines. Co-author of ***Cities are Abnormal, Churches and Temples, The South Builds.*** Lecturer and Visiting Critic at many American colleges and universities. Fellow of the American Institute of Architects. Member, Advisory Design Panel, United States Navy (1966-). National President of the Association of Collegiate Schools of Architecture, 1963-65. Educational Consultant to the American Iron and Steel Institute. Consulting Architect to the Chattanooga Housing Authority.

Enn Kayari. Architect. Assistant Professor of Architecture. Teaching Intermediate Architectural Design and Building Technology. B.Arch., University of Toronto, Canada, 1960. M.Arch., University of Pennsylvania, 1965. Pittsburgh Glass Scholarship (second prize), Gouldstone Traveling Scholarship, Pilkington Traveling Scholarship and The Royal Architectural Institute of Canada Medal. Finalist, British Commonwealth Rome Prize Competition, 1965. 1960-62: Worked for Sir Basil Spence, R.A., London; professional adviser to jury on Theater and Cultural Center for Neuchatel, Switzerland. 1962-64: Staff architect, Bregman and Hamann, Toronto; design coordinator on Scarborough College, John Andrews and Page/Steel, Architects, Toronto; N.C. Board of Science and Technology grant, "Industrialization in the Masonry Industry: An Application to Low and Moderate Cost Housing." Member, the Royal Architectural Institute of Canada; Associate Member, the American Institute of Architects.

Harry A. Mackie. Design Engineer. Associate Professor of Product Design and Mechanical Engineering. Teaching Applied Physical Principles and Advanced Concepts in Product Engineering. Studied, Tulane University, 1931-32; B.S. in Aerospace Engineering, Louisiana State University, 1936. Registered Professional Mechanical Engineer in Michigan and Louisiana. Professional experience: Senior Project Engineer, Fisher Body Central, 1947-51; Chief Engineer, Harley Earl, Inc., 1951-54; Senior Research Design Engineer, General Motors Styling Center, 1954-67. Has had 32 U.S. and eight foreign patents granted as a result of his work.

Don A. Masterton. Industrial Designer. Associate Professor of Product Design. Teaching Intermediate Product Design and Advanced Product Design. B.S. in Product Design, Southern Illinois University, 1952; M.S., Illinois Institute of Technology, 1954. Associate Professor of Design, University of Illinois, Chicago, 1954-66. Visiting Lecturer at Virginia Polytechnic Institute, Pratt Institute, Ball State College, Ohio State University, California School of Arts and Crafts, Parsons School of Design, University of Toronto. Free lance: exhibition design, industrialized housing design, summer home, U.S. Overseas Exhibition, Department of Commerce, 1964. Research: E.F.L. Ford Foundation Research Grant, 1964; U.S.O.E., University of Illinois, 1965. National Committee on Creativity, ACSA, 1964-65; Graham Foundation Fellowship, 1966-67. Member AAUP.

Wayne Maynard. Landscape Architect. Assistant Professor of Landscape Architecture. Teaching Landscape Design and Landscape Technology. B.S. in Landscape Architecture, California State Polytechnic College, 1963; M.L.A., University of Michigan, 1966. Designer, Department of Landscape Architecture, San Diego City School District, 1963-64. Designer, Atwell-Hicks Inc., 1965-66. Associate of the American Society of Landscape Architects.

Raymond Musselwhite. Sculptor. Associate Professor of Design. Teaching Environmental Design and Advanced Visual Laboratory. Attended University of Maryland, Wilmington College, George Washington University. B.S. Ed., University of Georgia, 1959. Graduate work at the University of Georgia. Assistant Professor of Art, Texas Wesleyan College, summer 1960. Instructor, School of Art, University of Oklahoma, 1960-61. Mary Rosenblatte Scholarship, University of Georgia, 1957-59. Work exhibited in Washington, D.C.; Athens, Georgia; Atlanta Art Institute, Dallas, Texas; Museum of Art and University of Oklahoma. Awards: First Award, 1961, Eleventh Mid-American Annual, Nelson Gallery, Kansas City; Honorable Mention, 1961, National Watercolor Exhibition, Jackson, Mississippi; First Award, 1961, Third Annual Exhibition of Southwestern American Art, Oklahoma Art Center, Oklahoma City.

Joseph A. Porter. Landscape Architect. Assistant Professor of Landscape Architecture. Teaching Landscape Design. B.F.A., Utah State University, 1964. M.L.A., University of Illinois, Urbana, 1968. Associate, American Society of Landscape Architects. Extensive professional experience in landscape architecture in Utah, California, Illinois, and Colorado. Consultant, City Beautification Commission, Baton Rouge, Louisiana, 1968-69. Assistant Professor of Landscape Architecture, Louisiana State University, 1966-69. Guest lecturer, Gloucestershire College of Art and Design, Cheltenham, England, 1969-70.

John Phillip Reuer. Architect and Architectural Historian, Assistant Professor of Architecture. Teaching History of Design and Historic Architectural Research. B.Arch., N.C. State University, 1963. Ph.D. in the History of Art (Architecture), Classical Archaeology and Archaeology of the Ancient Near East, Freie Universitat Berlin, 1968. Collaboration on various lightweight structures, Frei Otto, Berlin, 1963-65. Collaborator, Frei Otto: ***Zugbeanspruchte Konstruktionen*** and Konrad Lehmann: ***Frei Otto: Spannweiten.*** Research Project on Papal Residences at the Vatican. Lecturer in Design and the History of Architecture, California State Polytechnic College, San Luis Obispo, California, 1967-69.

Stuart W. Rose. Architect. Assistant Professor of Architecture. Teaching Environmental Design, Visual Communication and Design Methods. B.Arch., Kansas State University, 1961. B.S., Arch. Eng., Kansas State University, 1961. M.Arch., University of Washington, 1965. Ph.D., Michigan State University, 1969. Member of the Association of Collegiate Schools of Architecture, Tau Sigma Delta and Missouri Registered Architects. Registered Architect in Missouri, Nebraska, Iowa, Wisconsin and Ohio and N.C.A.R.B. Certificate. Architectural work in independent projects and in several architectural firms. Lecturer in Architecture, University of Nebraska, 1965-66. Assistant Professor of Architecture, University of Cincinnati, 1966-67. Consultant, Educational Planning Staff, Michigan State University, 1967-68. Representative publications: ***A Notation/Simulation Process for Composers of Space,*** Michigan University Press, 1968. "Television: A Potential Tool in the Architectural Design Process," ***Architectural and Engineering News,*** August 1966. "Television as an Architectural Design Tool," ***A. I. A. Journal,*** March 1967. "On Beyond Models," ***Architectural and Engineering News,*** January 1968. "Towards a Stimulus/Response Partial Theory of Design," ***Architectural and Engineering News***, May 1969.

Henry Sanoff. Architect. Associate Professor of Architecture. Teaching Advanced Architectural Design, Design Methods, and Environmental Perception. B.Arch., Pratt Institute, 1957; M.Arch., Pratt Institute, 1962. Principal investigator of research project, "Social Implications of the Physical Environment." Assistant Professor of Architecture, Research Architect and Chairman, Design Research Laboratory, University of California, Berkeley, 1963-66. Who's Who in the West, Who's Who in the Southeast. Department of Housing and Urban Development research grant, "Low Income Housing Demonstration," and "Evaluation of Three Case Study Dwellings." Research in the area of behavioral aspects of the environment, predictive and evaluative techniques for performance measurement. Monograph published by Design Research Laboratory "Techniques of Evaluation for Designers." Articles, research and work published in ***Architectural Forum, A.I.A. Journal, House and Home, Interbuild, Wohnen and Bohen, Neuf, Arts and Architecture, Student Publication of the School of Design.*** Member, Board of Directors, Low Income Housing Development Corporation, Durham. Member, the American Institute of Architects. Editorial Committee of Design Methods Group. Chairman, Environmental Design Research Association and co-editor of the proceedings of the 1st Annual Environmental Design Research Association Conference, EDRA-1, May 1970.

Vernon F. Shogren. Architect. Associate Professor of Architecture. Teaching Intermediate Architectural Design and Visual Communication. B.Arch., University of Minnesota, 1950. M.Arch., Massachusetts Institute of Technology, 1952. Fulbright Scholarship, 1952-53. Technische Hogeschole, Delft, Holland. Designer in office of Eero Saarinen and Associates. Member, the American Institute of Architects. Publications include "Some Thoughts on Design Education." ***Student Publication of the School of Design,*** Vol. 12:1; "Notes Toward a Conceptual Model of Environmental Design, ***Student Publication of the School of Design***, Vol. 19:1; "A Conceptual Model of Environmental Design," Design Research Laboratory Monograph.

Duncan R. Stuart. Painter and Designer. Professor of Design. Teaching in Intermediate Design area and Advanced Visual Laboratory. Studied: University of Oklahoma, Chouinard Art Institute, Yale University (Weir Scholarship). Teaching: Waterbury Art Institute, University of Oklahoma, University of Michigan. Visiting professorships and lectureships: Cornell University, University of Pennsylvania, University of Texas, University of Southern California, Massachusetts Institute of Technology, University of Southern Illinois, University of Detroit, University of Cincinnati, Tulane University, University of Hawaii. Creative work: painting, sculpture, graphic arts, experimental structures, mathematics, Operations Analysis (U.S. Air Force). Exhibited paintings and graphics in most major U.S. cities and has received numerous awards. Works represented in many public and private collections. Publications primarily in fields of geometry, graphic problems of design and various papers on operational problems of the United States Air Force. Present activities largely center on geometrical studies.

Earl Wayne Taylor. Designer and Painter. Assistant Professor of Architecture. Teaching Environmental Design and Perception and Communication. B.Arch., N.C. State University, 1958. N.C.A.I.A. Book Award, 1958. Rome Prize in Architecture, two year Fellowship at the American Academy in Rome, Italy, 1960-62. Associate Professor, School of Architecture, University of Puerto Rico, 1966-68. Honorable Mention 31st Annual N.C. Artists Exhibition.

Paul Tesar. Architect. Instructor in Architecture. Teaching Environmental Design and Visual Communication. "Diplomingenieur der Architektur," Vienna Institute of Technology, 1968. M.Arch., University of Washington, (pending). First prize in student competition for youth hostel, 1962. Work in architectural firms in Austria, Sweden and Switzerland. Urban planning project with Jakob B. Bakema at the International Summer Academy for Fine Arts in Salzburg and Rotterdam, 1967. Co-winner, third prize in international competition for the Innsbruck Congress-Center.

Edwin G. Thurlow. Landscape Architect. Professor of Landscape Architecture. Teaching Landscape Design and Landscape Technology. Purdue University, 1928-29; B.S. in Landscape Architecture, N.C. State University, 1932; M.L.A., Harvard University, 1936. Charles Eliot Traveling Fellow in Landscape Architecture, 1937. Landscape Architect, Maine State Planning Board, National Park Service. U.S. Forest Service, Land Planning Consultant, Federal Housing Administration. Head, Department of Landscape Architecture, 1947-50. Member and former Trustee of the American Society of Landscape Architects. Registered Landscape Architect. Work published in ***Progressive Architecture, Architectural Forum, Architectural Records, House Beautiful, Better Homes and Gardens, Landscape Architecture,*** and ***Time Saver Standards.*** Award of Merit for Landscape Design, Southeastern Region, the American Institute of Architects, North Carolina Chapter. Merit Award, House and Home Outdoor Living Competition.

Richard R. Wilkinson. Landscape Architect. Associate Professor of Landscape Architecture and Head of the Department of Landscape Architecture. Teaching Landscape Design. B.S. in Landscape Architecture, Pennsylvania State University, 1958; M.L.A., University of Michigan, 1962. Teaching experience: University of Michigan, 1962-68; N.C. State University, 1968- . Professional experience: Simonds and Simonds, Landscape Architects, Pittsburgh, Pa.; Redevelopment Authority, Pittsburgh; Richard R. Wilkinson Associates, Ann Arbor, Michigan; Design Workshop, Raleigh. Publications: ***Design Approach to Land Development; Recreation Development in Mandtee National Forest; Tourisme et Recreation dans de Region de Temiscouata, Urban Design for Ann Arbor; the Huron River Valley.***

Ignacio M. Zubizarreta. Architect. Visiting Associate Professor of Architecture. Teaching Advanced Architectural Design and Building Technology. B.Arch., with Honors, N.C. State University, 1958. A.I.A. School Medal, 1958. Member of the Colegio de Arquitectos de Venezuela and Colegio de Ingenieros de Venezuela. Architect for the Ministerio de Obras Publicas, Direccion de Planeamiento, Caracas, 1958-59. Chief Architect for the Ministerio de Obras Publicas, Direccion de Edificios, Caracas, 1962-66. Chief Architect for the Ministerio de Educacion, Direccion Techica Oficinode Arquitectura, Central de Venezuela, 1958-69 and Director of the Escuela de Arquitectura, 1968-69. Has undertaken numerous major studies and projects for Unesco, the World Bank and government agencies in Venezuela. Private practice from 1966 to present.

PART-TIME FACULTY

Walter P. Baermann. Designer. Professor of Product Design. M.Arch., M.S. in Engineering, Technische Hochschule, Munich, Germany, 1926; Ph.D., University of Munich, 1928. Teaching Colloquium, Office and Industrial Practice, and Special Projects.

Dale A. Blosser. Lecturer in Architecture. B.Arch., N.C. State University, 1956. Teaching Professional Practice.

Harwell Hamilton Harris. Architect. Professor of Architecture. Teaching Intermediate Architectural Design. Fellow, the American Institute of Architects and member of Congres International d'Architecture Moderne. Collaborator with Richard Neutra, 1929-32. Private practice since 1933. Director, School of Architecture, University of Texas, 1951-55. Visiting Critic: University of Minnesota, Yale University, Columbia University. Important contributor to development of California house both as modern and regional expression. Work included in: A.I.A's selection of 75 significant buildings, 1857-1957; Architectural Record's 50 Most Significant Buildings of Past 100 Years; Museum of Modern Art's 47 buildings, 1932-42; 43 Buildings, 1943-53; Encyclopedia Britannica Yearbook; Masters of Modern Architecture, Braziller, Inc. Exhibition of works in numerous museums and international expositions. Buildings widely published in U.S. and foreign countries—articles in many publications including ***A.I.A. Journal, House Beautiful,*** and ***Perspecta.*** Listed in "Who's Who in America," "Current Biography" and "Dictionary of International Biography."

Werner K. Hausler. Lecturer in Architecture. B.Arch., N.C. State University, 1962. Teaching Professional Practice.

Shakif I. Rifaat. Visiting Lecturer in Urban Design, B.Arch., Alexandria University, Egypt, 1960. M.Arch., Massachusetts Institute of Technology, 1962. M.C.P., Harvard University, 1965. Ph.D. in Architecture and Planning, Catholic University (pending). Teaching Urban Design.

Brian Shawcroft. Lecturer in Architecture. Southwest Essex Technical College and School of Art, London, 1949-53. M.Arch., Massachusetts Institute of Technology, 1960. Teaching Advanced Visual Laboratory (photography).

James Bradford Wiggins. Lecturer in Architecture. B.Arch., N.C. State University, 1956. Teaching Building Technology.

STAFF OF THE SCHOOL OF DESIGN

DONNA ALLEY. Secretary, Department of Architecture. Attended University of North Carolina at Charlotte.

JAMES L. BOST. Assistant Shop Supervisor.

HUBERT M. CHAMPION, SR. Shop Supervisor. Winner of the Second Annual Craftsmanship Award from the North Carolina Chapter of the American Institute of Architects, 1967.

ANNE CRADDOCK. Secretary and Recorder. Attended Memphis State College. Diploma from West Tennessee Business College.

MODINE EXUM. Library Assistant. Attended Baylor University.

NELLIE FOGUS. Secretary, Departments of Landscape Architecture and Product Design. Attended Glenville State College, Glenville, West Virginia.

BEVERLY DIANE GARDNER. Library Assistant. B.A., Indiana University, Bloomington, Indiana.

WINIFRED HODGE. Administrative Secretary. Diploma in Commercial Education, Dunsmore Business College, Staunton, Virginia.

BARBARA LILES. Secretary. Certificate from Hardbarger's Business School.

PATRICIA McLEAN. Secretary to the Dean. Graduate, Needham Broughton High School, Raleigh.

JANE P. MYATT. Library Assistant. B.A., University of North Carolina at Greensboro.

HELEN K. ZSCHAU. Librarian. B.A., Shorter College, Rome, Georgia.

SCHOLARSHIPS, ASSISTANTSHIPS, AND FINANCIAL AID

Students in the School of Design are eligible for a number of special scholarships and assistantships in addition to student loans and other normal forms of financial assistance administered through the University Office of Financial Aid.

These special scholarships are awarded on the basis of financial need, academic performance and professional promise.

The Department of Architecture awards the following scholarships to undergratuate students in Architecture:

Leslie N. Boney Memorial Scholarship of $500
Carolina Solite Corporation Scholarship of $500
Food Equipment Contract Company Scholarship in Design of $500
Mid-State Tile Scholarship of $500
Price Roberts Scholarship of $500
Ready-Mixed Concrete Scholarship of $1,000
Lyles, Bissett, Carlisle & Wolff Scholarship of $500

Undergraduates in Architecture may apply for scholarships awarded nationally by the American Institute of Architects. In the past two academic years, students from the School of Design have received from this source scholarships totaling $1,850.

The North Carolina Architectural Foundation has provided a special annual scholarship of $500 for a minority group student having financial need.

The Department of Product Design awards the following scholarship to undergraduate students in Product Design:

Stanley J. Niederman Scholarship of $500

The Department of Architecture is presently awarding three fellowships of $3,000 to graduate students in Architecture from North Carolina Design Foundation funds.

A limited number of Research Assistantships are available to graduate students in the School of Design on application and demonstration of capabilities to assist in faculty research. A full-time appointment as a Research Assistant involves a twenty-hour weekly work commitment and carries a stipend of $2,900 for nine months. Part-time assistantships may be awarded with reduced work load and compensation.

Application for financial aid and further information about available scholarships and loans may be obtained by writing directly to Mr. Charles F. George, Jr., Director of Financial Aid, 203 Peele Hall, North Carolina State University, Raleigh, North Carolina 27607.

HONORS AND AWARDS

The American Institute of Architects gives a gold medal to a graduate in Architecture considered by the faculty of the School most outstanding in scholarly achievement and character, and a Certificate to the runner-up. The North Carolina Chapter of The American Institute of Architects offers an annual award of $50 in books to the student judged by the faculty of the School to be most outstanding in architectural design.

Alpha Rho Chi, national professional architectural fraternity, annually gives a bronze medal to the graduate in Architecture judged by the faculty of the School to be most outstanding in leadership ability, professional potential through attitude and personality, and performed service to the School.

In 1964 a bequest was made in the will of the late Walter Hook, F.A.I.A., architect of Charlotte, to establish through the Design Foundation a book award to be given annually to a graduate in Architecture who had done the most outstanding work in specifications and the materials of construction.

The American Society of Landscape Architects awards a Certificate of Merit to a graduate in Landscape Architecture judged by the faculty of the School to be outstanding in scholarly achievement and character.

The North Carolina Chapter of the Southeastern Chapter of The American Society of Landscape Architects gives a $50 book award each year to the graduate in Landscape Architecture judged by the faculty of the School to be most outstanding in his total scholastic performance.

The Industrial Designers Society of America gives a Certificate of Merit each year to the graduate in Product Design judged by the faculty of the School to be most outstanding in scholarly achievement, character and professional promise.

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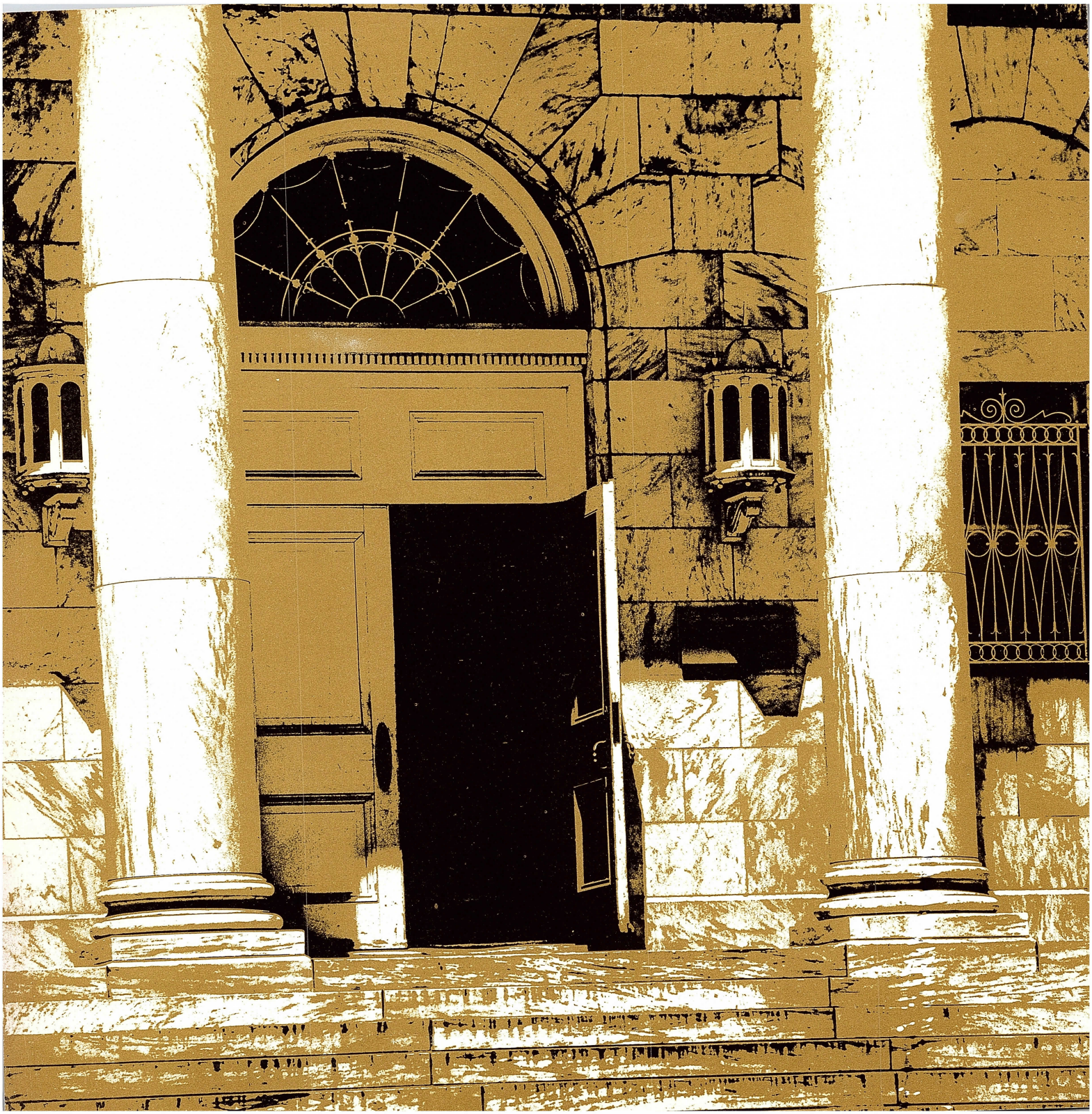
Prospective students may obtain application blanks and general information about the University by writing to the Director of Admissions and Registration, North Carolina State University at Raleigh, Raleigh, N. C. 27607.

Banks C. Talley, Jr. - Dean of Student Affairs / Carl O. Eycke - Dean of Men / Carolyn S. Jessup - Dean of Women / Patrick J. Weis - Director of Housing.



The Consolidated University of North Carolina

WILLIAM C. FRIDAY	President
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North Carolina State of the University of North Carolina at Raleigh

JOHN T. CALDWELL	Chancellor
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HARRY C. KELLY	Dean of the Faculty
JAMES J. STEWART, JR.	Dean of Student Affairs

1963-4

The School of Design as a statewide and regional design center, is devoted and dedicated to the development of a native design and its accompanying art forms for the southern region.

The school in its teaching recognizes the dangers inherent in a materialist-mechanistic civilization where there may be an over-reliance on the machine and the mechanical devices available for use to man in his constructions for shelter. We give attention, therefore, to that larger responsibility of design, the art of humanizing the environment.

And, while the natural and organic aspects of design are stressed the international and universal aspects are also respected and related to the humane patterns of life. We seek to integrate the designer as a social human being and as a scientist-engineer, and we encourage and nurture the designer-engineer as the co-ordinator of the structural dynamics in the over-all patterns of life. While our first aim is to serve North Carolina and the regions of the South, we believe that our students will be equipped, through the teaching of the school, to work in any region.

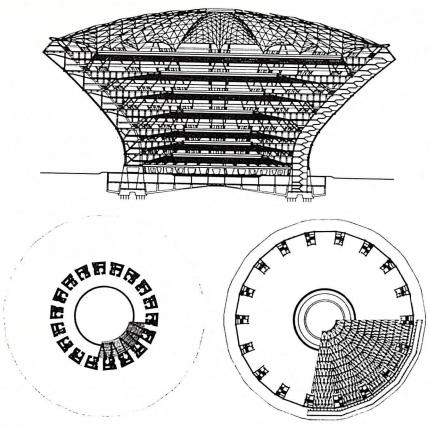
Because character, a profound devotion, and an absolute professional commitment are prime ingredients of any creative activity where the social responsibilities are as vital as in design, we foster and cultivate the integrity of the individual.

Individual creative expression is emphasized as the epitome of good design, but teamwork is also encouraged and developed as a necessity of humane progress in the machine civilization of the day. We believe that the "prima donna" who isolates himself behind the intellectual barrier of his own self-sufficiency fails to recognize and understand the importance and necessity of the formal technique of compromise as a dominant factor of design as related to the social pattern of life, just as nature in all her workings adjusts to all pressures and all tensions.

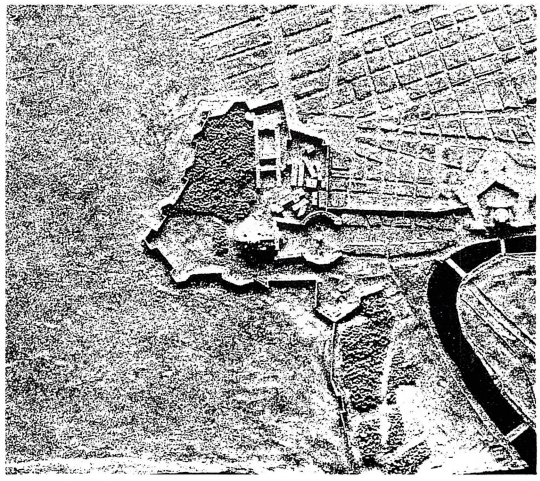
The faculty of the School of Design have been selected for their individual and diverse personal philosophies and their individual yet divergent professional qualifications. We have brought together creative personalities, willing in their teaching to subordinate their own professional interests to the pedagogically more important interests of their students. Here a community of scholars working each in his own way searches for the truth as he sees it, giving the young student the benefit of his professional knowledge, his technical training, and his experience as a citizen. We encourage the student to sift and sort this diversity of opinion, even though in this process, he is usually stimulated and sometimes confounded. In the end we are confident that he arrives through this process at an ability to shape his own conclusions. To combat the dangers of over-specialization we seek to develop the personality and character as a whole. The goal in the growth of the student is not only the mastery of the design techniques of the profession, but through the stimulation and development of the intellect and emotional capacities together, a readiness is developed to meet the challenge of any environment.

HENRY L. KAMPHOEFNER, DEAN

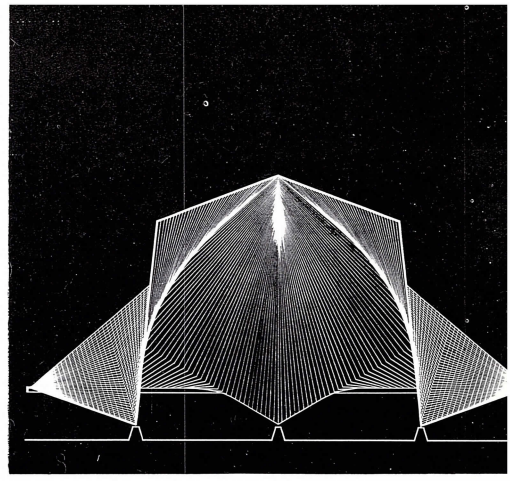




Theme Center for a World's Fair



City, Form and Intent



Warped Surfaces

Magazine

In 1950 the students of the School of Design established the *Student Publication of the School of Design*. This organization is open to participation by all students and gives the students the opportunity to express their ideas. Besides sponsoring an annual Art Auction, the organization prepares a faculty lecture series and contacts all Visiting Lecturers for interviews. The Publication is internationally circulated and is an independent student project maintained by student fees, patron and regular subscriptions, miscellaneous contributions and proceeds from the annual Art Auction.

Scholarships and Loan Funds

Three scholarships of $750 each are issued annually by the Garden Club of North Carolina, Inc. Students from North Carolina who have graduated from an accredited high school or an approved preparatory school within the last five years are eligible. These awards are made on the basis of scholastic record, personality, and evidence of interest in Landscape Architecture. For further information write the Head of the Department of Landscape Architecture.

In 1955 the Kendrick Brick and Tile Company of Charlotte gave the first of three $2,500 scholarships for high school graduates in the four counties surrounding Charlotte. Beginning in September 1958, uncommitted funds from these scholarships were converted into a student loan fund in the amount of $4,250. This loan fund is now available to students in architecture.

In 1958 Arthur S. Berger, prominent Landscape Architect of Dallas, Texas, gave the School of Design $1,000 to be made available as a loan fund to advanced students in the Department of Landscape Architecture.

In 1958, the Tile Council of America gave the first of three annual contributions of $500 each to be used as a loan fund for advanced students in architecture.

General Motors Corporation offered for the first time in 1961-62 several scholarships paying resident tuition, fees, and supplies to three students in Product Design.

Honors and Awards

The American Institute of Architects annually gives a gold medal to the graduating student in architecture most outstanding in scholarly achievement and character; and a book award is given to the runner-up. The North Carolina Chapter of the American Institute of Architects offers an annual prize of $50.00 in books to the student excelling in architectural design.

Alpha Rho Chi, national professional architectural fraternity, gives annually a bronze medal to the graduating student in architecture judged by the faculty to be most outstanding in scholarly achievements, character, professional potential, and performed service to the school.

The American Society of Landscape Architects annually gives a Certificate of Merit to the graduating student judged by the faculty to be outstanding in scholarly achievement and character.

Architecture

The architect creates the structures that shape our physical environment. In doing so he assumes great social responsibility. His buildings must not only utilize today's technical resources but must also promote the well being of the persons and institutions that use them. So various are the needs they serve and the means available to serve them that today's architecture is capable of a far greater natural richness than that of any previous period. This calls for a similar variety of interests, knowledge, talents and skills on the part of today's architect. The design of a building may begin with any one of a number of considerations—social, aesthetic, historic, psychological, structural, financial—but it will eventually include all of them. The education of the architect may likewise begin with one or another interest but it must eventually encompass many interests.

In architecture, the School of Design subscribes to no single aesthetic doctrine. It prefers to expose the student to a faculty representing a wide variety of viewpoints. It aims to give him experience covering all aspects of his chosen field. In doing so it helps him become technically competent, intellectually mature, and culturally literate. The heart of the curriculum is the student's work in architectural design. It is surrounded by courses in science, technology and the humanities. History, philosophy and literature—fields of knowledge essential to an understanding of man and his world—are studied in parallel with architectural design rather than as prerequisites to it. The closely allied professions of landscape architecture and product design, together with painting and sculpture, occupy adjoining studios and share lecture rooms and library with architecture. Architecture students take courses in these departments also and faculty in these departments serve with architects on the architectural design juries.

The advantageous location of the School of Design makes it possible to draw on the professional talent of a large area. Visitors are an important addition to the resident faculty. They include distinguished architects and critics as well as specialists in architectural acoustics, mechanical equipment of buildings, advanced structures, physiology of light and sound and other related fields. In this way students have an opportunity to meet and talk with a wide and varied cross section of the architectural world. In doing so they discover something more or the nature of the profession for which they are preparing.

Landscape Architecture

Landscape Architecture, beginning in ancient times and continuously developing to the present, is now defined as the design of outdoor space for the benefit, protection, use, and enjoyment of people. Never before have the challenges to this profession been so great, diverse, and complex. It is to their solutions that this department is directed. One such challenge is the design of landscapes with architectural character, scale, and size, such as those associated with the city, town, park, and garden. Another challenge is the designed development of the earth's resources in landscapes of varying character, from coast to mountain, from desert to pasture. Such land areas, large in scale and size, must be designed indigenously and ecologically. Unlike many art forms time is an essence of the design, and long periods are often necessary before it has grown to completion. Architectural and engineering materials are used together with those materials that have life, the plants and trees. These latter materials have a continuous cycle of growth and movement, closely coupled with the forces of nature. The profession is both an art and a science, depending concomitantly upon logic and technology.

A student in the department is in continual and intimate association with allied fields, such as architecture, engineering, painting, sculpture, horticulture, botany, geology, and ecology. In spite of the necessity for assimilation of such specialized requirements, he must possess a background from which to design. For this reason he is given a sound and thorough analysis of the past through the study of historical examples. With the rapid growth of the world's population and the increasingly intensive use of land, it is imperative that the student have both ability and clarity of purpose if he is to develop and design landscape solutions that are beautiful, useful, productive, and of continuing value.

Product Design

The Department of Product Design is dedicated to provide American industry with men of exceptional creative ability and sound judgment for the responsibilities that occur in design for mass production.

Product Design (or Industrial Design) is too often considered "styling" or "appearance design". Born as a gimmick-laden sales device in the depression, Product Design is now beginning to assume its true status: to provide meaningful design of all the objects that mass production and an expanding economy needs. Such fields as military hardware, farm implements, appliances, furniture, toys, office equipment, exhibitions, surgical and medical tools, all come within the range of the product designer.

Throughout history man has been a pattern-conscious, order-seeking animal. With the coming of the machine age, mass production, cybernetics, and automation, the process of form-giving is relegated to the product designer. In spite of the tawdry fads and gimcracks, the field has become the logical tool with which mankind can transform its environment into a more meaningful one. By now, virtually every "thing" we come in contact with in our daily lives has been designed for mass production. To this process the product designer brings a unique synthesis of psychology, art, technology, engineering, sociology and biology.

A high level of creative problem solving is becoming an ever expanding need in American industry. Students bring to this process a healthy skepticism of existing solutions and employ their understanding of materials, tools, processes to develop new concepts through sketches, models, renderings, experimentation, and engineering drawings. Production requirements, cost estimates, market analysis, distribution methods, packaging and consumer testing are required in the solution of any design problem.

The basic tenet of the department is to provide the student with the skills needed, and at the same time nourish his greatest assets: individuality and integrity. By directing the student towards design work that has the social good in mind and exposing him to the inter-relation of such skills as Bionics, anthropology, and advanced psychology, he will be able to fulfill a more valuable function in our society.

Graduates will be qualified to work as staff designers with corporations, in industrial design offices or as independent consultants. Their backgrounds will enable them to supervise and coordinate long-range planning programs, as well as accept design responsibility from the original ideation stage to consumer production.

The shortage of trained personnel in this field is becoming more acute every year; while the economic rewards are great, even more important is the personal satisfaction of providing for the needs of man.



Architecture Curriculum

				Credits	
				f	*s*
1	DN	101, 102	Design I, II	4	4
	DN	111, 112	Descriptive Drawing I, II	2	2
	DN	121, 122	Technical Drawing I, II	2	2
	ENG	111, 112	Comp. & Rhetoric; Comp. & Reading	3	3
	MA	102, 201	Analytic Geometry & Calculus I, II	4	4
	MS	101, 102	Military Science I (or)		
	AS	121, 122	Air Science I	1	1
	PE	101, 102	Physical Education	1	1
				17	17
2	ARC	201	Architectural Design I	4	0
	DN	211, 212	Descriptive Drawing III, IV	2	2
	EM	211	Introduction to Applied Mechanics	0	3
	HI	245, 246	History of European Civilization	3	3
	LAR	201	Landscape Design I	0	4
	PY	211, 212	General Physics	4	4
	MS	201, 202	Military Science II (or)		
	AS	221, 222	Air Science II	1	1
	PE	201, 202	Physical Education	1	1
			Elective	3	0
				18	18

Summer Requirement: Two weeks on Historic Architecture Research

3	ARC	300	Historic Architecture Research	0	2
	ARC	301, 302	Architectural Design II, III	5	5
	CE	338, 339	Structures I, II	4	4
	DN	311, 312	Advanced Descriptive Drawing I, II	2	2
	DN	321, 322	History of Design I, II	3	3
	EM	212	Mechanics of Engineering Materials	3	0
			Elective	0	3
				17	19

Summer Requirement: Eight weeks on approved construction, office experience, or foreign travel.

4	ARC	401, 402	Architectural Design IV, V	6	6
	ARC	421, 422	Structural Design I, II	3	3
	ARC	431, 432	Environmental Factors	3	3
	DN	411, 412	Advanced Descriptive Drawing III, IV	2	2
	DN	421, 422	History of Design III, IV	3	3
	LAR	311	Landscape Technology I	4	0
			Elective	0	3
				21	20
5	ARC	501, 502	Architectural Design VI, VII	6	8
	ARC	511, 512	Professional Practice I, II	2	2
	ARC	531, 532	Structural Design III, IV	2	2
	DN	541	Seminar on Ideas in Design	2	0
			Electives	3	6
				15	18

Total credits for the Bachelor of Architecture—180

6 credits of elective will be required in the literature of English or the literature of a modern foreign language; 3 in the social sciences; the remaining 9 free electives.

Landscape Architecture Curriculum

				Credits *f*	Credits *s*
1	DN	101, 102	Design I, II	4	4
	DN	111, 112	Descriptive Drawing I, II	2	2
	DN	121, 122	Technical Drawing I, II	2	2
	ENG	111, 112	Comp. & Rhetoric; Comp. & Reading	3	3
	MA	111	Algebra and Trigonometry	4	0
	MA	112	Analytic Geometry and Calculus A	0	4
	MS	101, 102	Military Science I (or)		
	AS	121, 122	Air Science I	1	1
	PE	101, 102	Physical Education	1	1
				17	17
2	ARC	201	Architectural Design I	4	0
	BO	103	General Botany	4	0
	DN	211, 212	Descriptive Drawing III, IV	2	2
	HI	245, 246	History of European Civilization	3	3
	LAR	201	Landscape Design I	0	4
	MIG	120	Physical Geology	0	3
	PY	221	College Physics	0	5
	MS	201, 202	Military Science II (or)		
	AS	221, 222	Air Science II	1	1
	PE	201, 202	Physical Education	1	1
			Elective	3	0
				18	19
3	BO	441	Plant Ecology	3	0
	DN	311, 312	Advanced Descriptive Drawing I, II	2	2
	DN	321, 322	History of Design I, II	3	3
	LAR	301, 302	Landscape Design II, III	5	5
	LAR	311, 312	Landscape Technology I, II	4	4
			Electives	0	6
				17	20

Summer Requirement: Eight weeks on approved construction, office experience, or foreign travel.

4	ARC	431	Environmental Factors	3	0
	DN	411, 412	Advanced Descriptive Drawing III, IV	2	2
	DN	421, 422	History of Design III, IV	3	3
	LAR	401, 402	Advanced Landscape Design I, II	6	6
	LAR	421, 422	Landscape Technology III, IV	4	4
			Elective	0	3
				18	18
5	DN	511, 512	Advanced Descriptive Drawing V, VI	2	2
	DN	541	Seminar on Ideas in Design	2	0
	LAR	501, 502	Urban and Regional Design I, II	8	8
	LAR	511, 512	Advanced Landscape Technology I, II	4	4
			Electives	3	3
				19	17

Total credits for the Bachelor of Landscape Architecture—180

6 credits of elective will be required in the literature of English or the literature of a modern foreign language; 3 in the social sciences; the remaining 9 free electives.

Product Design Curriculum

				Credits	
				f	*s*
1	DN	101, 102	Design I, II	4	4
	DN	111, 112	Descriptive Drawing I. II	2	2
	DN	121, 122	Technical Drawing I, II	2	2
	ENG	111, 112	Composition & Rhetoric; Comp. & Reading	3	3
	MA	102, 201	Analytic Geometry & Calculus I, II	4	4
	MS	101, 102	Military Science I (or)		
	AS	121, 122	Air Science I	1	1
	PE	101, 102	Physical Education	1	1
				17	17
2	BS	301	Fundamentals of Biology	0	3
	DN	211, 212	Descriptive Drawing III, IV	2	2
	EC	205	The Economic Process	3	0
	HI	341	History of Technology	3	0
	PD	201, 202	Product Design	4	4
	PSY	200	Introduction to Psychology	0	3
	PY	211, 212	General Physics	4	4
	MS	201, 202	Military Science II (or)		
	AS	221, 222	Air Science II	1	1
	PE	201, 202	Physical Education	1	1
				18	18
3	CH	101, 103	General Chemistry I, II	4	4
	DN	311, 312	Advanced Descriptive Drawing I, II	2	2
	EM	211	Introduction to Applied Mechanics	3	0
	EM	212	Mechanics of Engineering Materials	0	3
	MIM	201, 202	Structure and Property of Engineering Materials	3	3
	PD	301, 302	Product Design	6	6
	PD	322	Design Graphics and Packaging	0	3
				18	21
4	DN	411, 412	Advanced Descriptive Drawing III, IV	2	2
	PD	401, 402	Advanced Product Design	6	6
	PD	441, 442	Design Analysis	2	2
	PSY	464	Visual Perception for Designers	3	0
	PSY	441	Human Factors in Equipment Design	0	3
			Electives	6	5
				19	18
5	DN	511, 512	Advanced Descriptive Drawing V, VI	2	2
	DN	541	Seminar on Ideas in Design	2	0
	PD	422	Office and Industrial Practice	0	2
	PD	501	Advanced Product Design	7	0
	PD	502	Product Design Thesis	0	9
			Electives	6	4
				17	17

Total credits for the Bachelor of Product Design—180

6 credits of elective will be required in the literature of English or the literature of a modern foreign language, 3 in the social sciences, and the remaining 12 free electives.



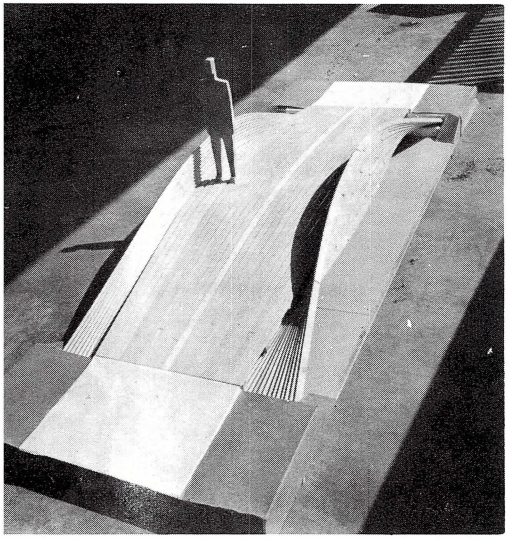
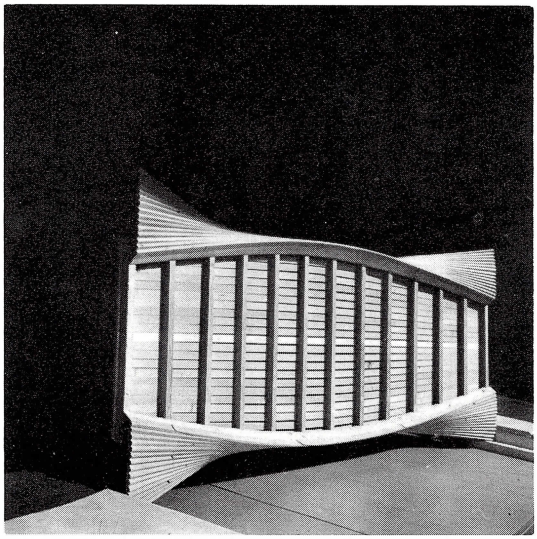
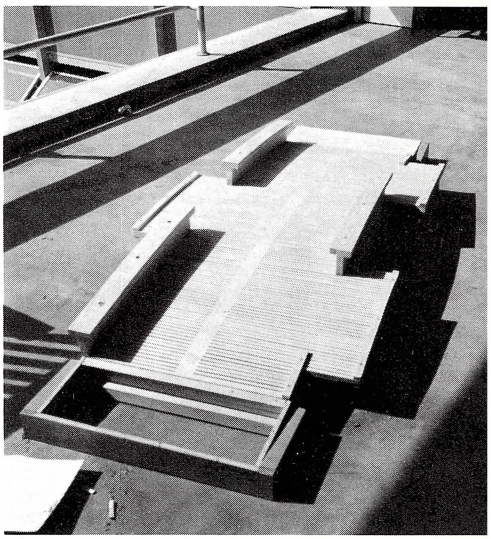
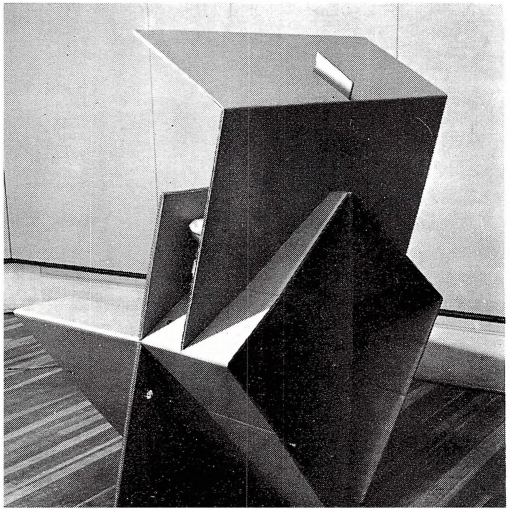
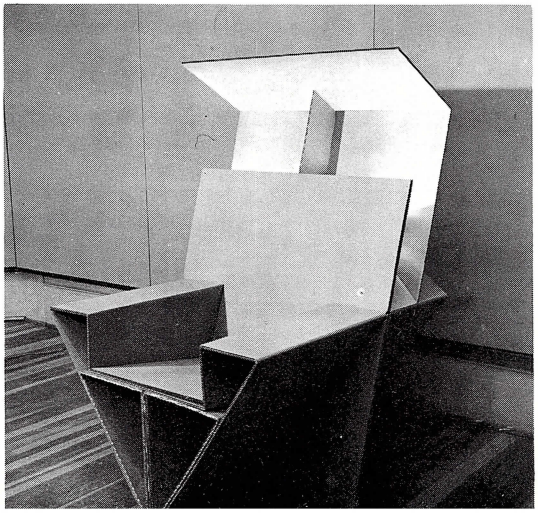
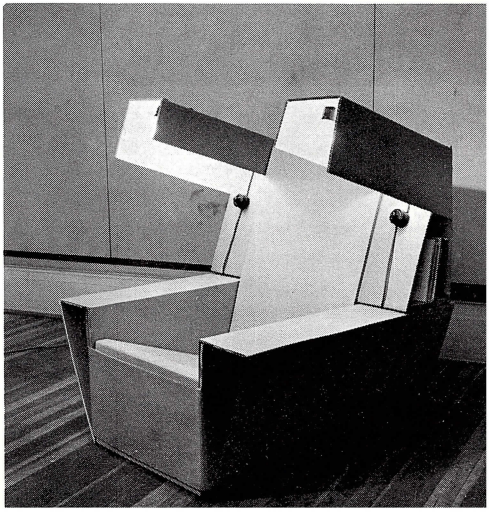
1

AS 121 Air Science I **ARC, LAR, PD 1(0-1) f**

During the fall semester, each student will be required to participate in the Leadership Laboratory program for one hour per week. Classroom requirements will be met by the satisfactory completion of at least three academic hours of an approved course in the fields of mathematics, modern languages or humanities.

AS 122 Air Science I **ARC, LAR, PD 1(2-1) s**

An introductory examination of the factors of aerospace power, major ideological conflicts, requirements for military forces in being, responsibilities of citizenship, development and traditions of the military profession, role and attributes of the professional officer in American democracy, organization of the armed forces as factors in the preservation of national security, and the United States Air Force as a major factor in the security of the free world.

DN 101, 102 Design I, II ARC, LAR, PD 4(2-9) f s

Required of first year students in the School of Design. Introduction to the elements and expression of two and three dimensional design involving a variety of tools, materials, and techniques. Orientation of historical and contemporary concepts of art, architecture, and technology.

DN 111, 112 Descriptive Drawing I, II
ARC, LAR, PD 2(1-2) f s

Required of first year students in the School of Design. Problems in visual analysis with emphasis on the systems man has devised to describe his visual experience.

DN 121, 122 Technical Drawing I, II
ARC, LAR, PD 2(1-2) f s

Required of first year students in the School of Design. Descriptive geometry and allied technical drawing. Lectures and simple exercises in analytical programming of architectural elements.

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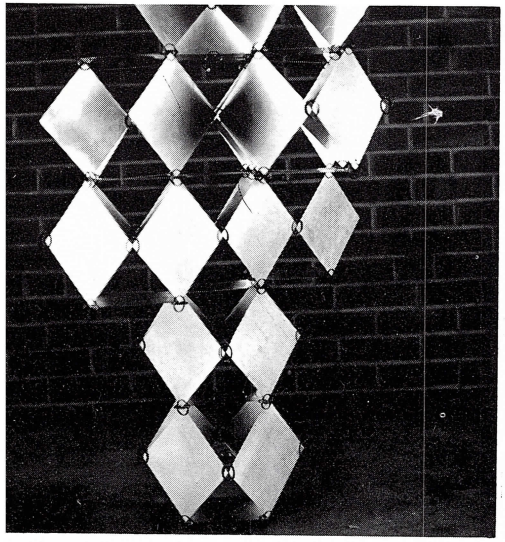
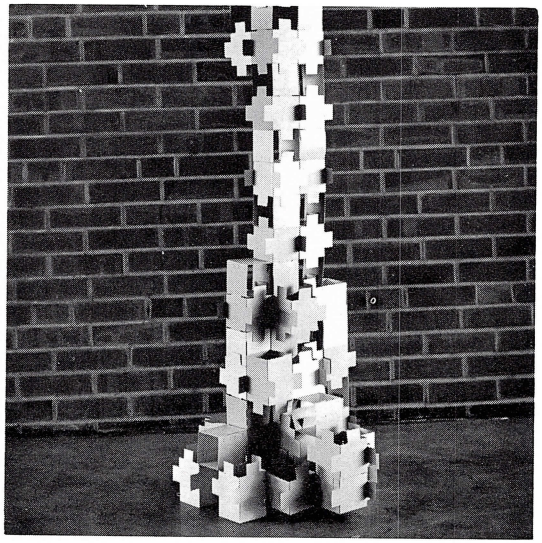
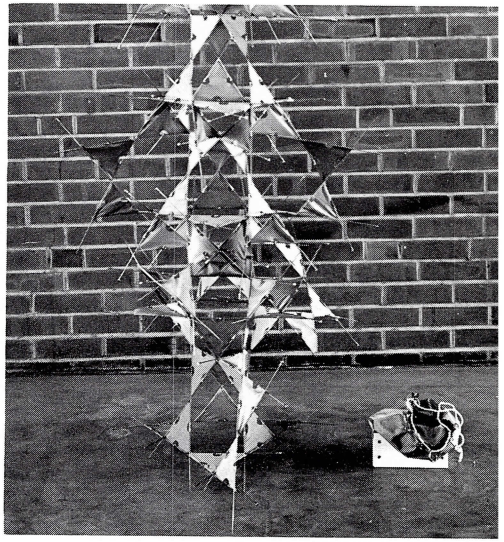
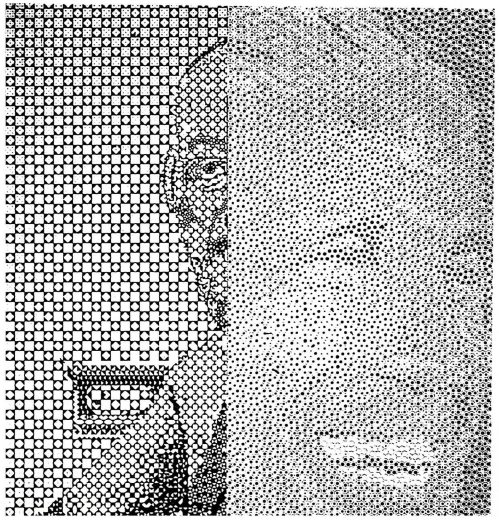
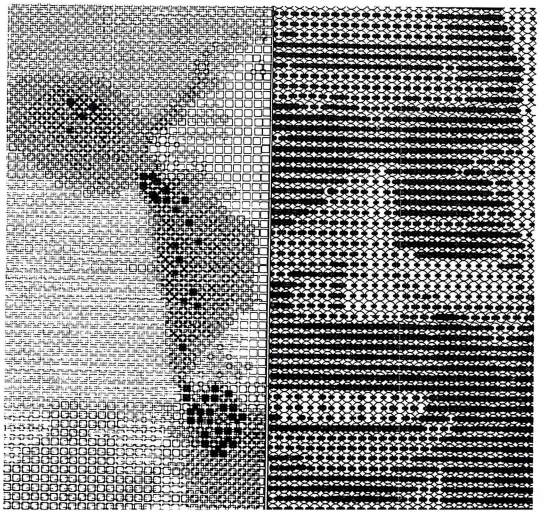
DN 102	DN 102	DN 102	DN 102	DN 102	DN 102

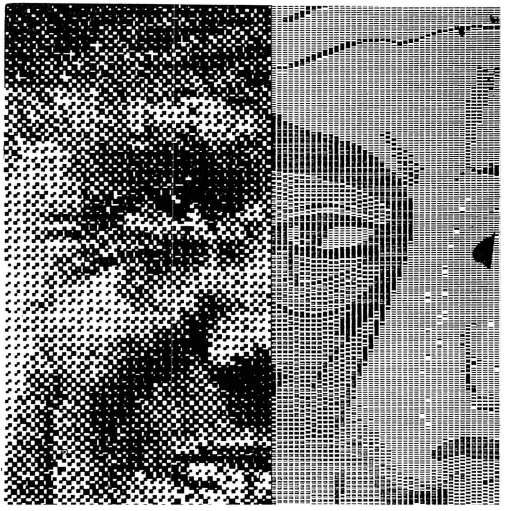












ENG 111 Composition and Rhetoric
ARC, LAR, PD 3(3-0) f s

Required of all freshmen.
Intensive study and practice in the basic forms and principles of expository communication; conferences.

ENG 112 Composition and Reading
ARC, LAR, PD 3(3-0) f s

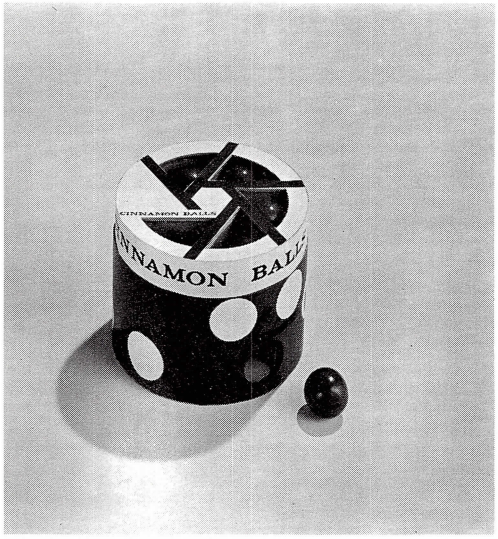
Required of all freshmen.
Continued practice in expository writing; research paper; introduction to literary types; collateral reading; conferences.
Note: Qualified students will be allowed to register for ENG 112 and will be given credit for both 111 and 112 upon successful completion of the latter. Eligibility for 112 will be based on a predetermined score on the Verbal Aptitude section of the SAT plus a composition to be written at the first or second class meeting of the 112 section.

MA 102 Analytic Geometry and Calculus I
ARC, PD 4(3-2) f s

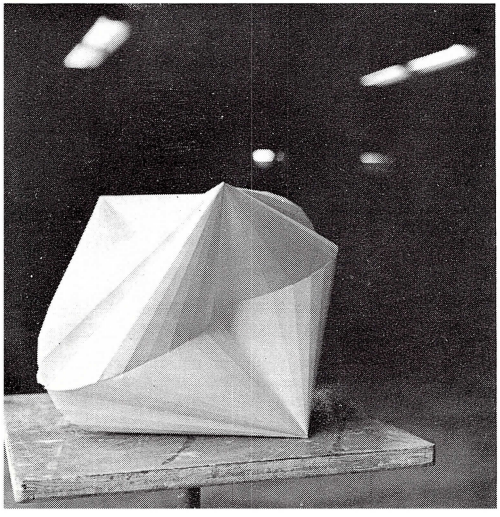
The first of three semesters of a unified course in analytic geometry and calculus. Topics studied include rectangular coordinates in the plane with graphs and equations of lines, algebraic curves, including the conic sections and others examined by general discussion methods. Also introduced are functions, limits, continuity, differentiation of algebraic functions, with applications of derivatives and differentials.

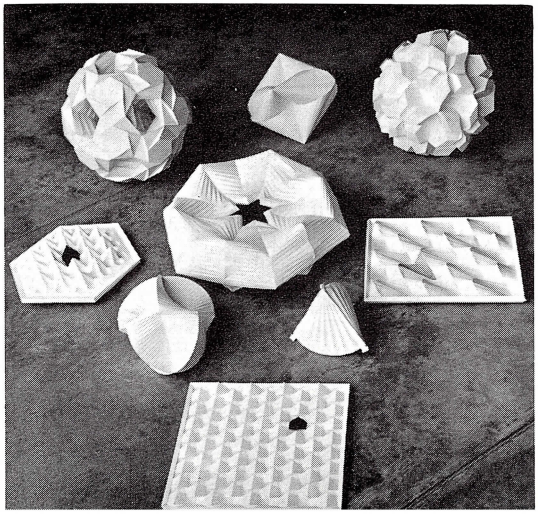
MA 201 Analytic Geometry and Calculus II
ARC, PD 4(3-2) f s

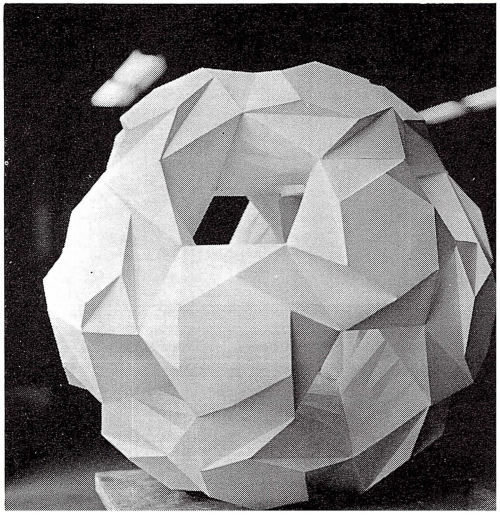
Prerequisite: MA 102
A course in the fundamentals of the calculus including the formulas for differentiation and for differentials; the integrals of polynominal functions; applications to geometry, maxima and minima, areas, volumes, moments of area, work, fluid pressure; related rates, rectilinear and curvilinear motion; Newton's method of approximation of roots.











MA 111 Algebra and Trigonometry LAR 4(3-3) f s

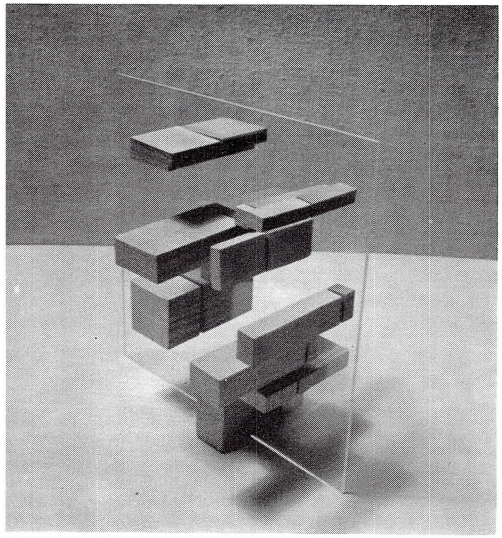
Properties of real numbers and basic postulates, algebra of sets, functions and graphs, complex numbers. Linear and quadratic systems of equations. Inequilities, variation, progressions, binomial theorem, theory of equations and determinants. Trigonometric functions, identities, slide rule and logarithm solution of right and oblique triangles.

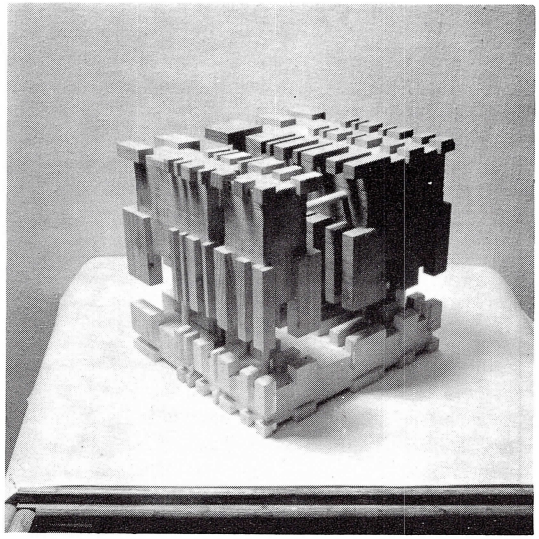
MA 112 Analytic Geometry and Calculus A LAR 4(3-2) f s

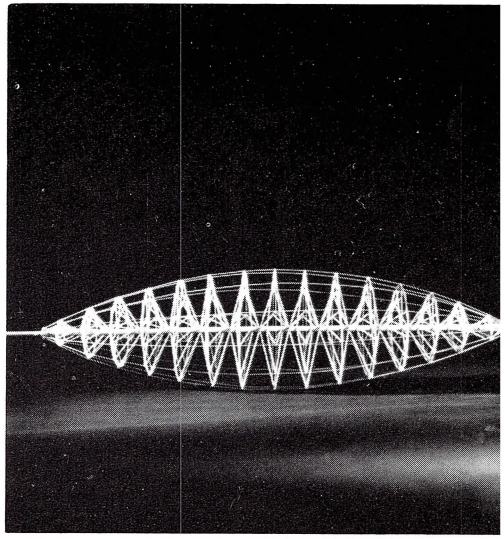
Prerequisite: MA 111

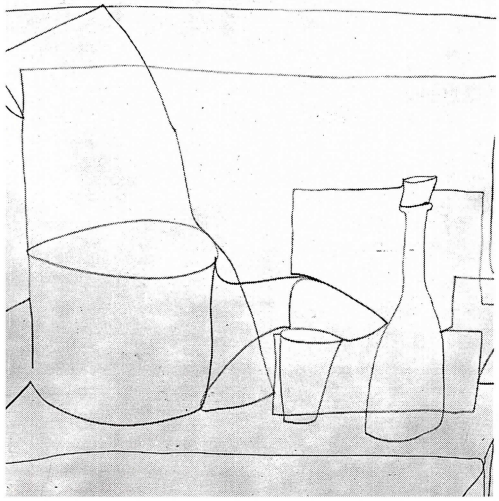
A unified course, beginning with elementary ideas in analytic geometry and calculus, with the introduction of additional work in trigonometry where needed; rectangular and polar coordinate systems, fundamental locus problems, lines and conic sections, curve tracing, the derivative, with applications to geometry and elementary practical problems.

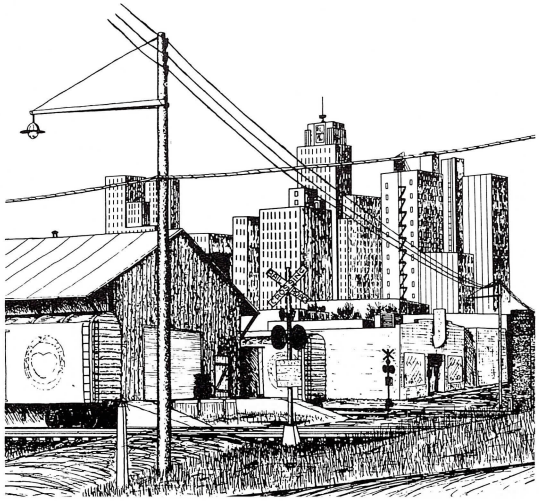
DN 101		DN 101	DN 101	DN 101	DN 101
DN 102	DN 102	DN 102	DN 111	DN 112	DN 111













MS 101 Military Science I ARC, LAR, PD 1(1-1) f

Classroom instruction is given in individual weapons and marksmanship, and organization of the Army. On the drill field, emphasis is placed on development of teamwork, esprit de corps, and essential characteristics of leadership.

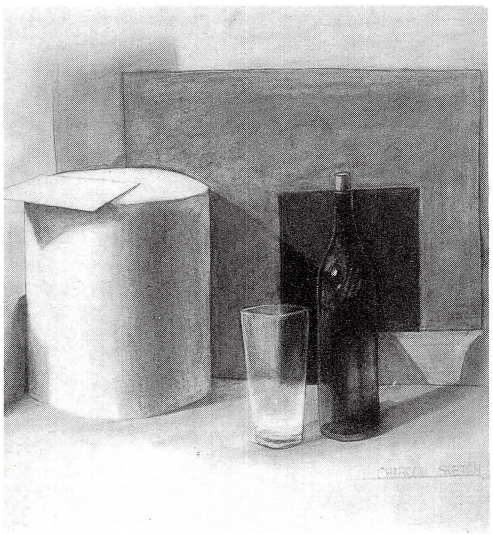
MS 102 Military Science I ARC, LAR, PD 1(1-1) s

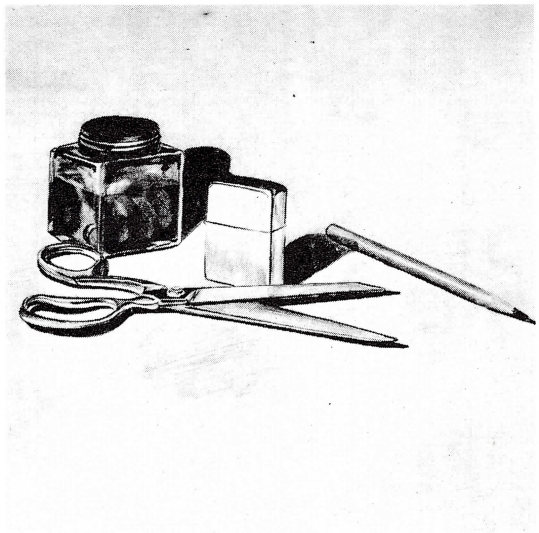
Prerequisite: MS 101 or equivalent credit

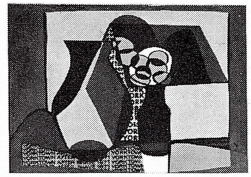
Classroom instruction is given in the role of United States Army and National Security. On the drill field, emphasis is placed on development of teamwork, esprit de corps, essential characteristics of leadership.

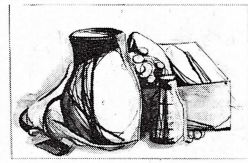
PE 101, 102 Physical Education
ARC, LAR, PD 1(0-2) f s

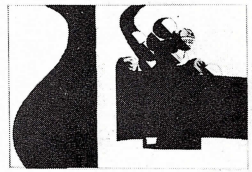
DN 112	DN 102	DN 112	ARC 201	ARC 201	ARC 201
DN 121	DN 121	DN 102	ARC 201	ARC 201	ARC 201

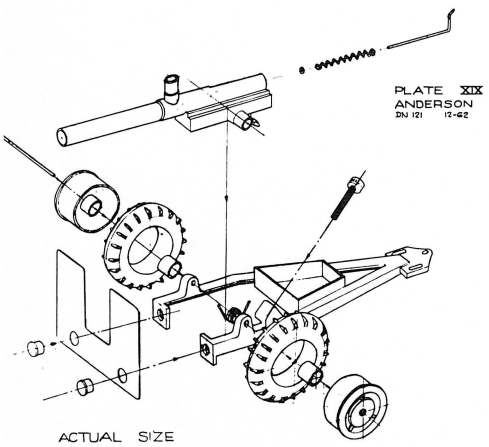


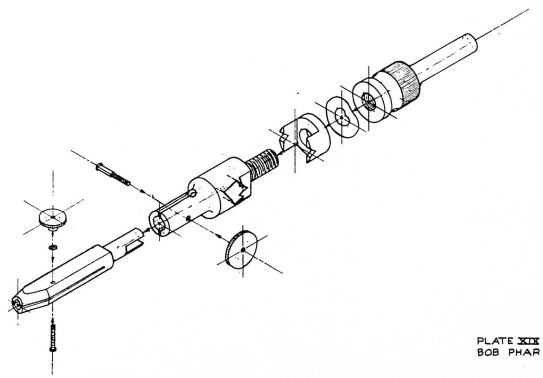


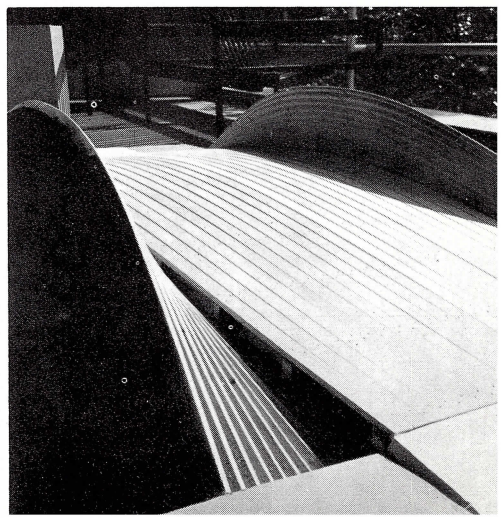












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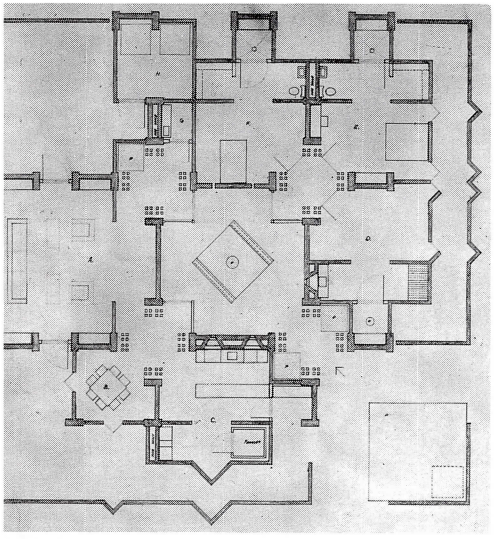
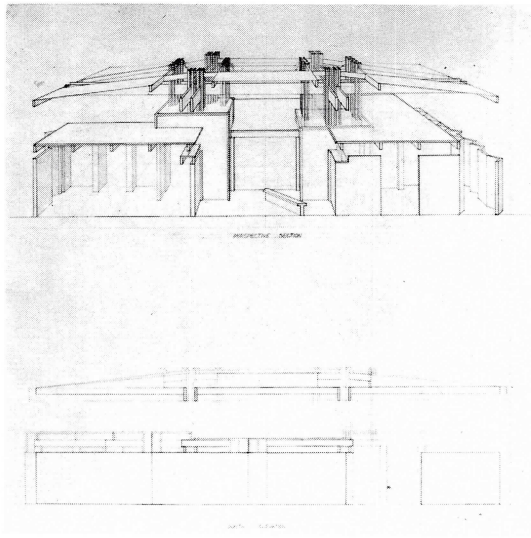
AS 221 Air Science II **ARC, LAR, PD 1(2-1) f**

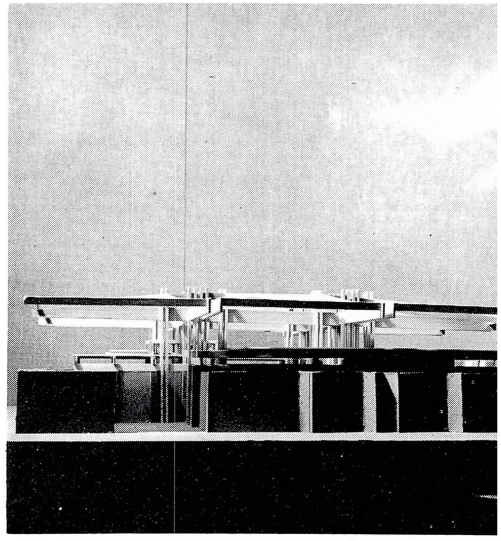
An introductory survey of aerospace missiles and craft, and their propulsion and guidance systems; target intelligence and electronic warfare; nuclear, chemical and biological warhead agents defensive, strategic and tactical operations; problems, mechanics and military implications of space operations; and a survey of contemporary military thought.

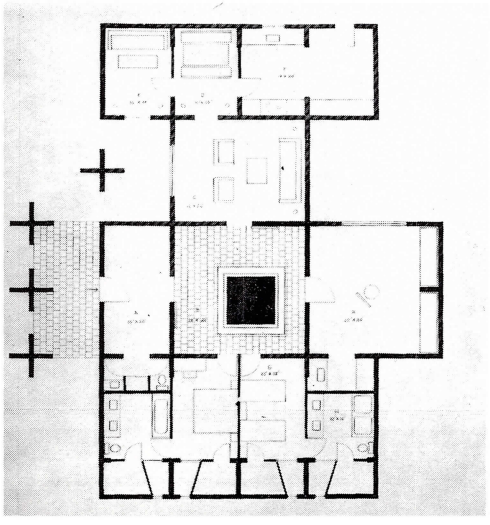
AS 222 Air Science II **ARC, LAR, PD 1(0-1) s**

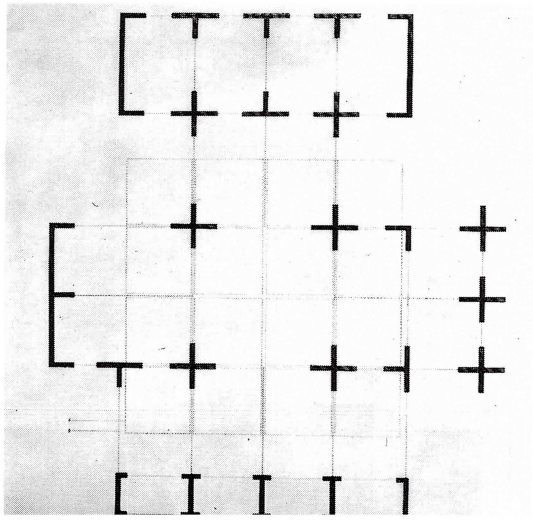
Leadership laboratory will continue; however, the classroom requirements will be met by satisfactory completion of at least three academic hours of an approved course in the fields of physical or natural sciences or in the intermediate levels of mathematics, modern languages, humanities or social sciences.

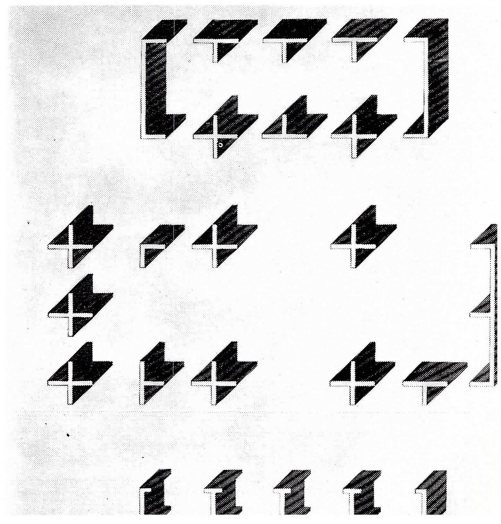












ARC 201 Architectural Design I
ARC, LAR 4(3-6) f s

Prerequisite: DN 102
Required of second year students in Architecture and Landscape Architecture.
Introductory exercises in architectural design. The design of small buildings of specific function and simple construction which can be related to the student's experience; emphasis on the influence of environment, climate, etc. Study of the materials of construction with special emphasis on light wood framing, millwork, masonry, tile and terrazzo.

BO 103 General Botany **LAR 4(3-2) f s**

An introduction to the field of Botany. Emphasis is placed on the structure, physiology and sexual reproduction of green and non-green plants and on the principles of heredity and ecology as they apply to these groups. The course may serve as a terminal course or as an introduction prior to further study in Botany.

BS 301 Fundamentals of Biology **PD 3(3-0) s**

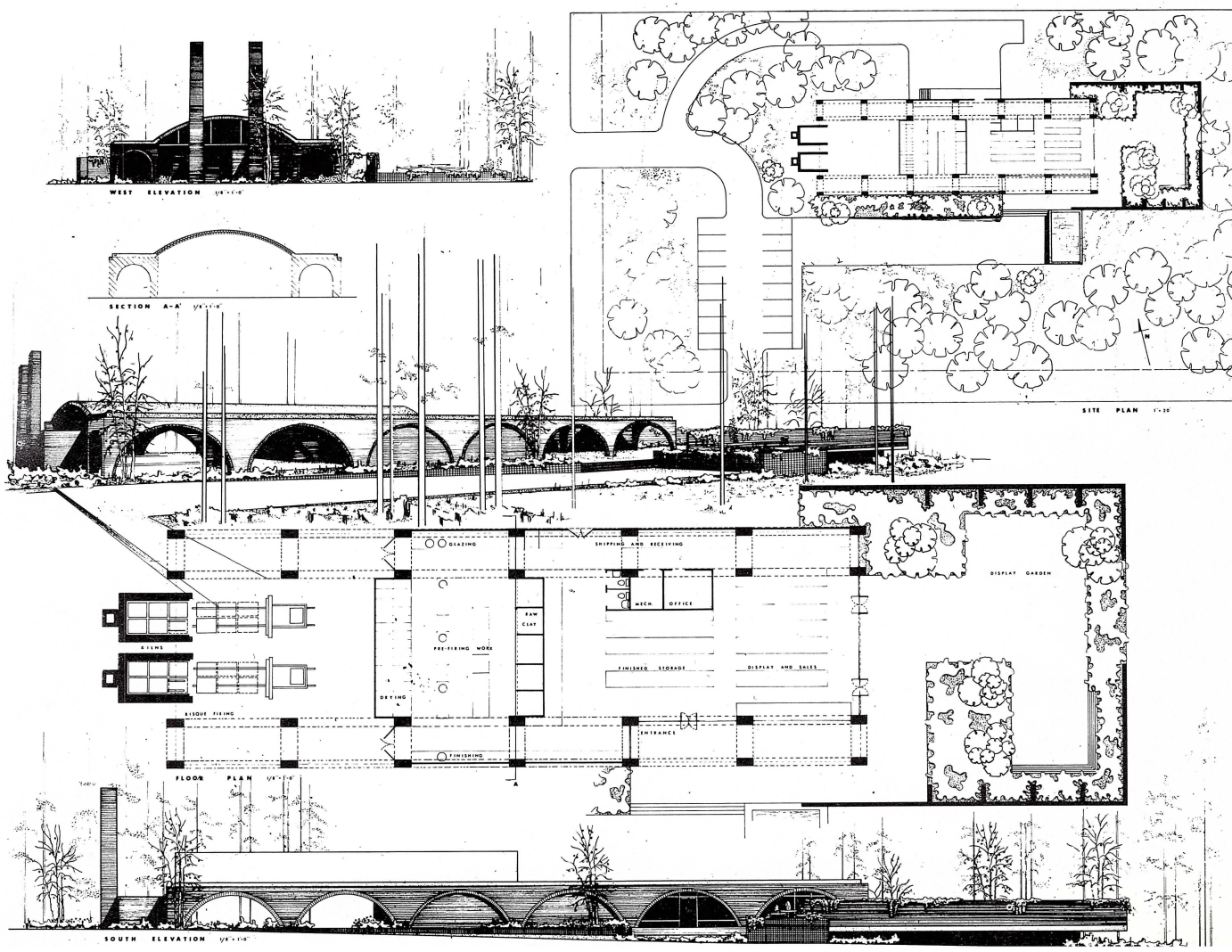
A survey of the major principles of the biological sciences. A course designed for students who have not had a college course in the biological sciences.

EC 205 The Economic Process **PD 3(3-0) f s**

An analysis of the process and principles by which an economy allocates resources, distributes goods and income and determines rate of growth.

EM 211 Introduction to Applied Mechanics
ARC 3(3-0) f

The concepts of particle and rigid body mechanics. The fundamentals of equilibrium, kinematics and kinetics are applied to engineering problems involving structures and machines.



HI 245, 246 History of European Civilization
ARC, LAR 3(3-0) f s

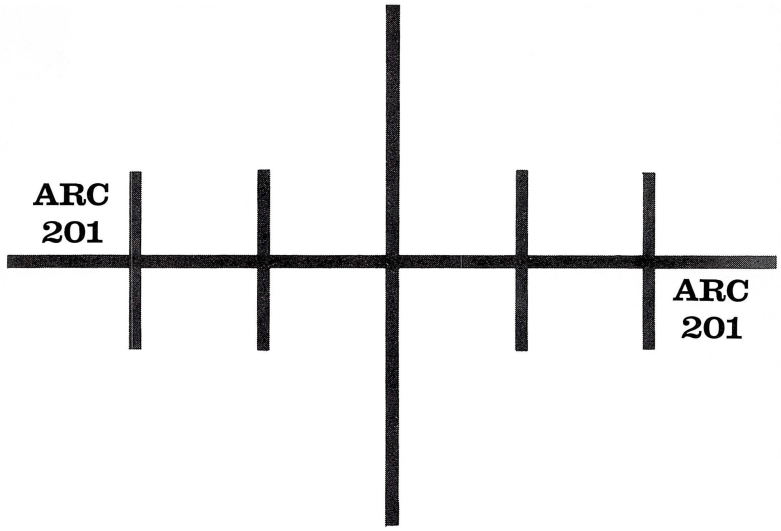
A history of European civilization from the Golden Age of Greece to the present. Those social, political, and economic currents most influential in the formation of modern society are interwoven through the principal periods of cultural expression.

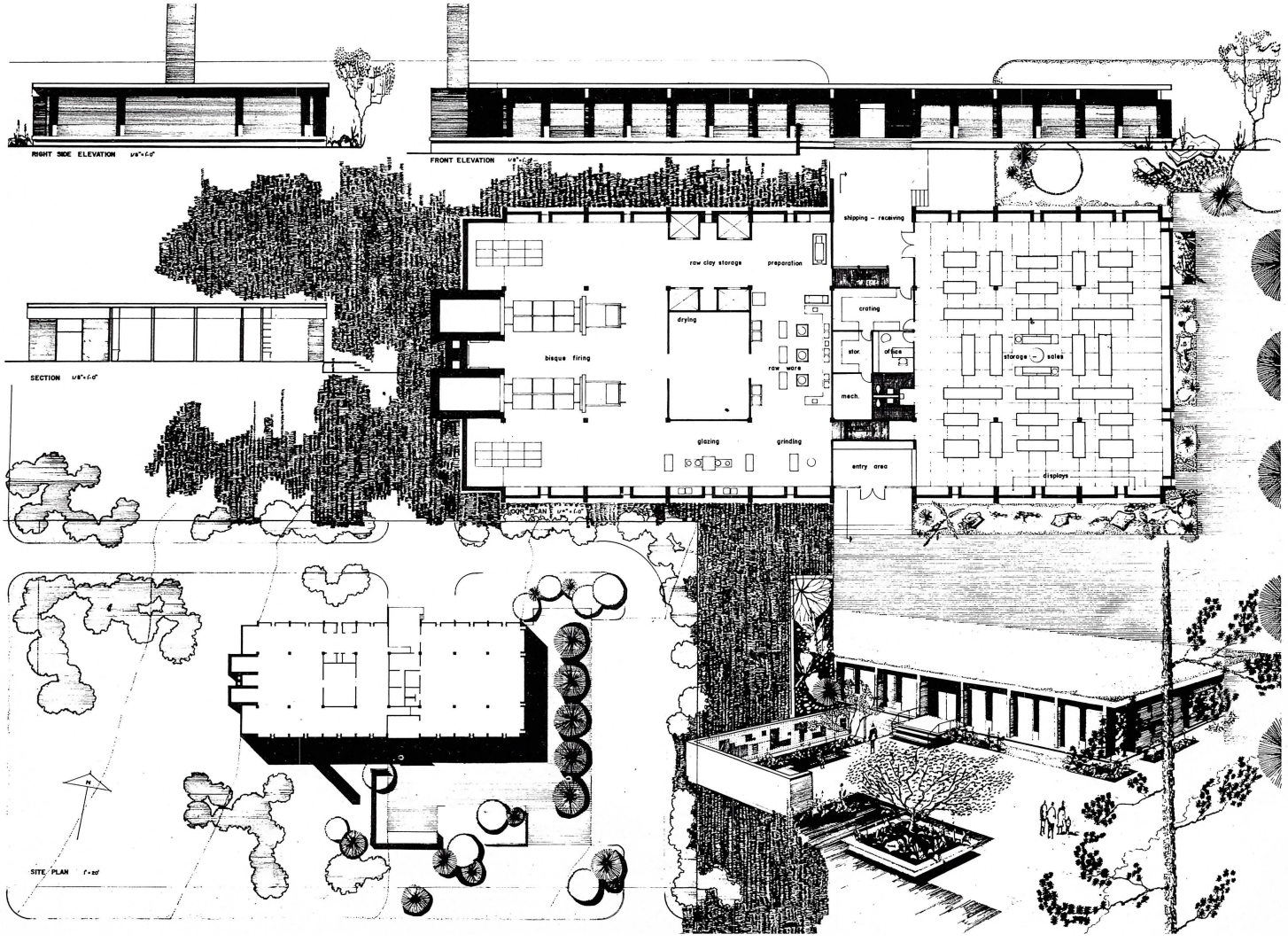
HI 341 History of Technology PD 3(3-0) s

The history and development of technology from primitive stone age tools to mass production and automation. Attention is concentrated chiefly on the last two centuries. The cultural context of technological change is emphasized.

LAR 201 Landscape Design I ARC, LAR 4(3-6) f s

Introductory exercises in landscape design. Site development and organization as related to climate, topography, and prevalent social criteria. Required of second year students in Architecture and Landscape Architecture.





MS 201 Military Science II ARC, LAR, PD 1(0-3) f
Prerequisites: MS 101, MS 102, or equivalent credit
Classroom instruction in American Military History. On the drill field emphasis is placed on development of teamwork, esprit de corps, essential characteristics of leadership, and acceptance of responsibility.

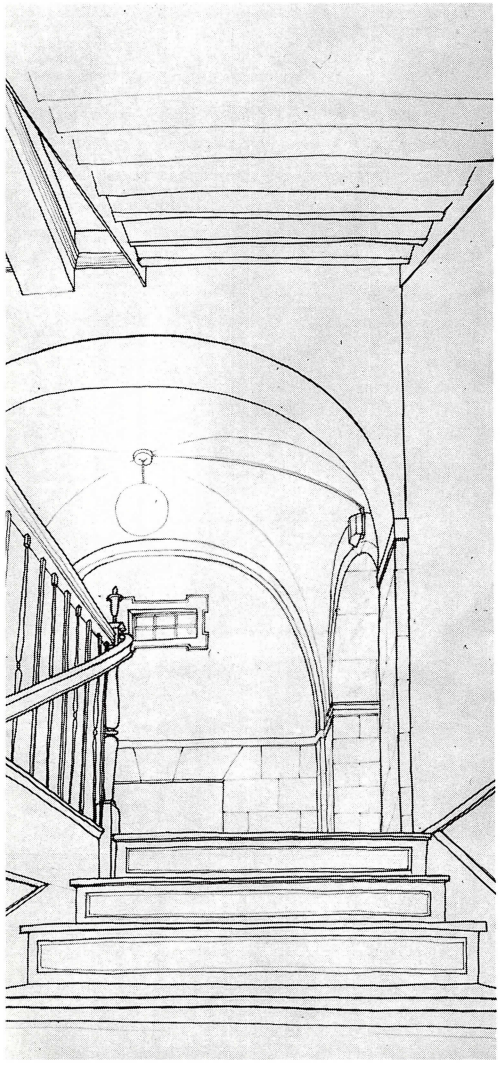
MS 202 Military Science II ARC, LAR, PD 1(0-3) s
Prerequisites: MS I and MS 201 or equivalent credit
Classroom instruction in map and aerial photograph reading and introduction to operations and basic tactics. On the drill field emphasis is placed on development of teamwork, esprit de corps, essential characteristics of leadership, and acceptance of responsibility.

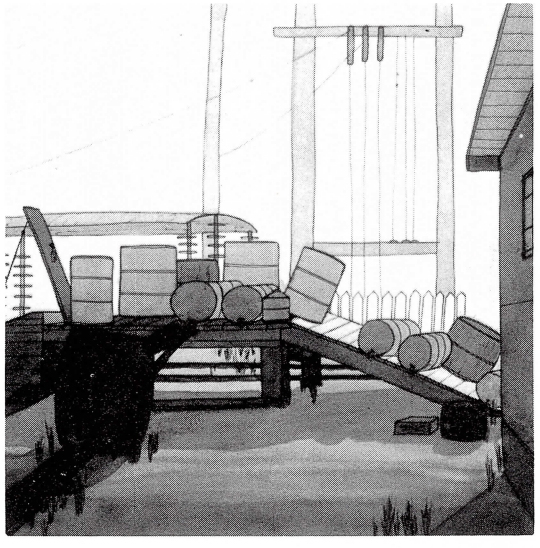
MIG 120 Physical Geology LAR 3(2-3) f s
Dynamic processes acting on and within the earth; materials and makeup of the earth's crust; emphasis on engineering and agricultural applications in the southeast. Lectures, laboratories and field trips.

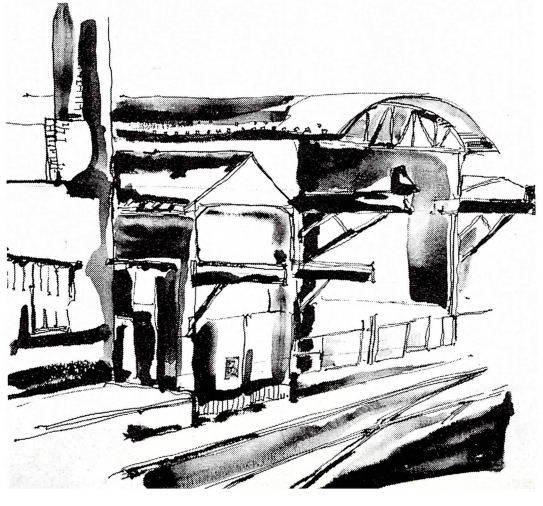
PE 201, 202 Physical Education
ARC, LAR, PD 1(0-2) f s

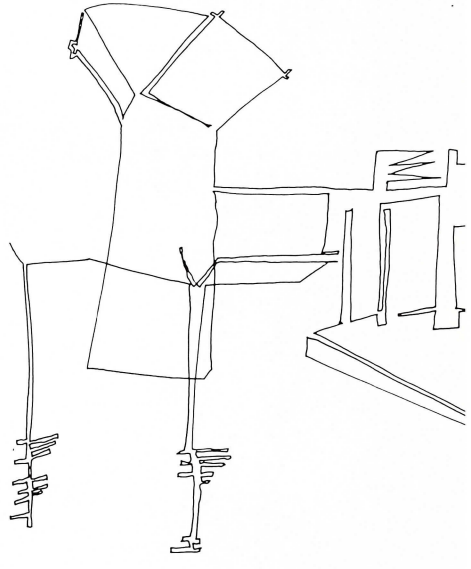
PY 211, 212 General Physics ARC, PD 4(3-3) f s; s
Prerequisite: MA 111 or MA 102
A survey of general physics designed to provide a practical understanding of the fundamentals on which technology is based. Recitations, demonstrations, and laboratory work. PY 211, mechanics and heat; PY 212, sound, light, and electricity.

PY 221 College Physics LAR 5(5-0) f s
Prerequisite: MA 111
Required in certain curricula of the School of Agriculture and the School of Design. An introduction to the origins of physical science, the fundamental principals of physics, and the many applications to modern technology. The important concepts in the classical areas of mechanics, heat, sound, electricity and magnetism, and light are presented, along with a brief survey of modern atomic physics. Lectures and demonstrations with class participation.







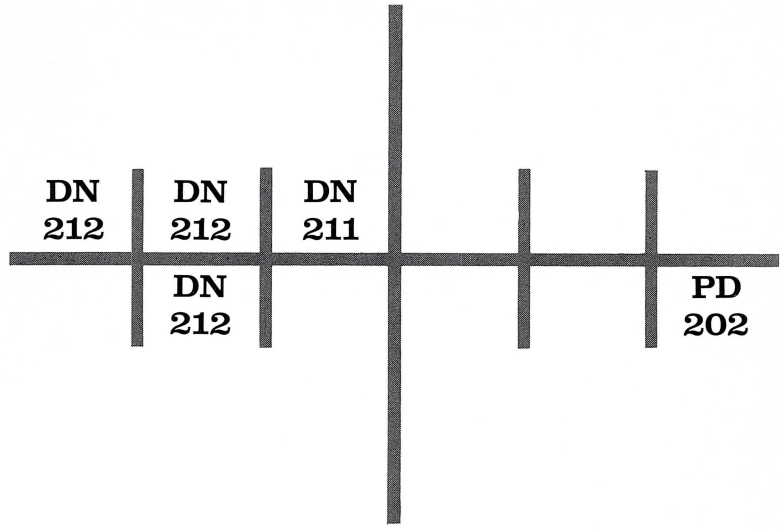


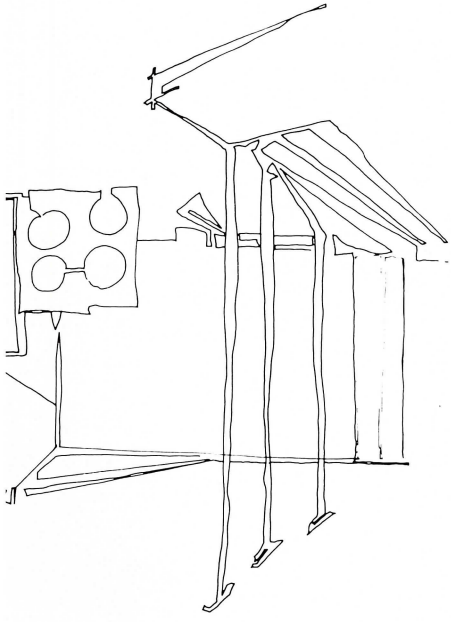
PD 201, 202 Product Design and Orientation **PD 4(3-6) f s**

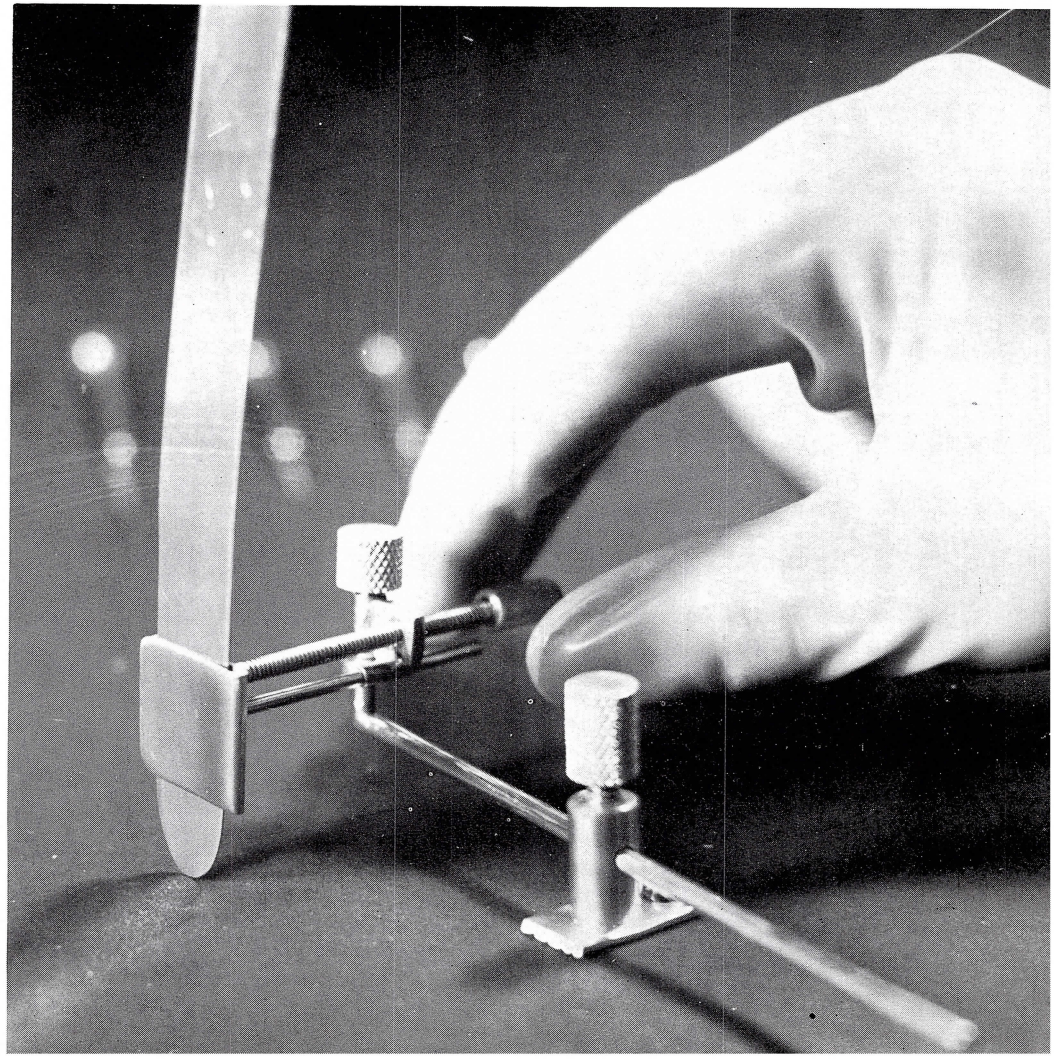
Prerequisite: DN 102
Required of second year students in Product Design. Elementary problems in form and function. Transitional implications of handcrafted and mass-produced objects, in various materials. Demonstrations by specialists in graphics, photography, rendering, modeling, typography, and technical illustration. Visits to design departments of local industries.

PSY 200 Introduction to Psychology **PD 3(3-0) f s**

A study of the general characteristics of human behavior, including motivation, learning, development, emotion, thinking, perception and sensation, and measurement. The objectives are development of the ability to communicate in oral and written form accurately and scientifically about behavior; development of an understanding of a capacity to use scientific ideas and processes as they apply to behavior; an understanding of the behavior of organisms.







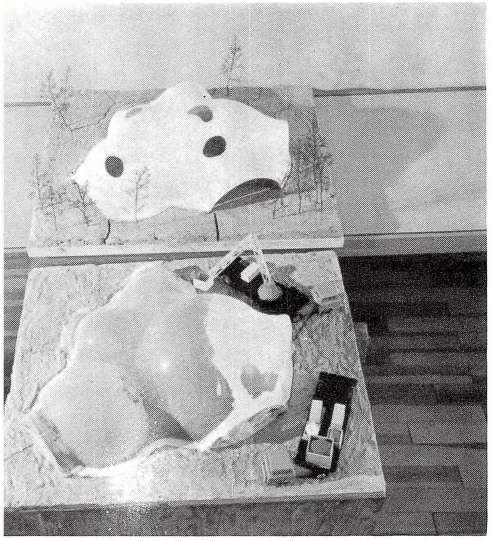
3

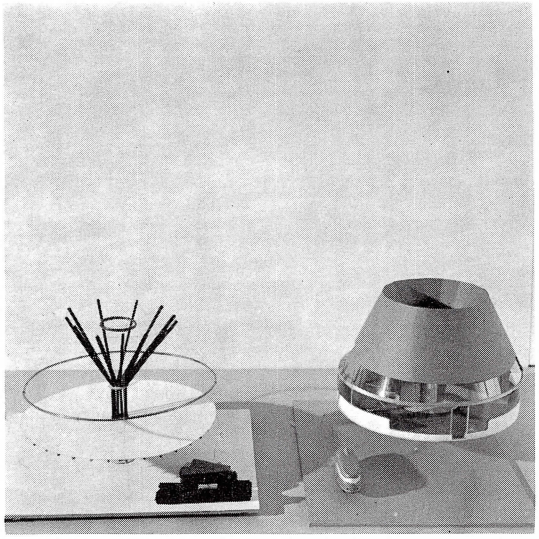
ARC 300 Historic Architecture Research
ARC 2 credits s

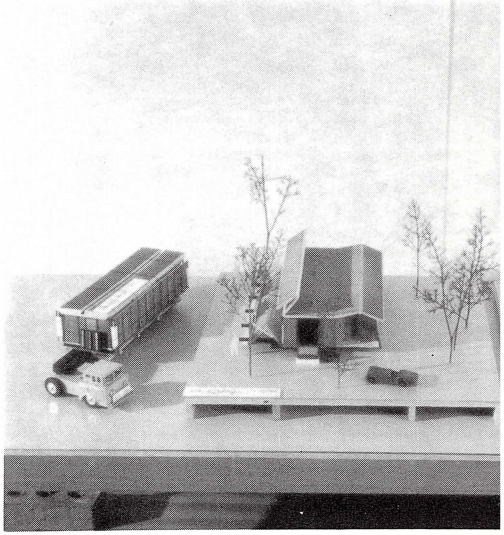
Prerequisites: ARC 201, LAR 201
Required of all students in Architecture.
Research and the recording of sites, monuments, buildings, or artifacts of historical interest.

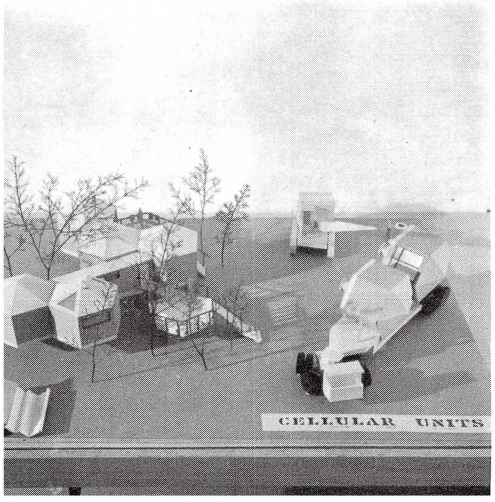
ARC 301, 302 Architectural Design II, III
ARC 5(3-9) f s

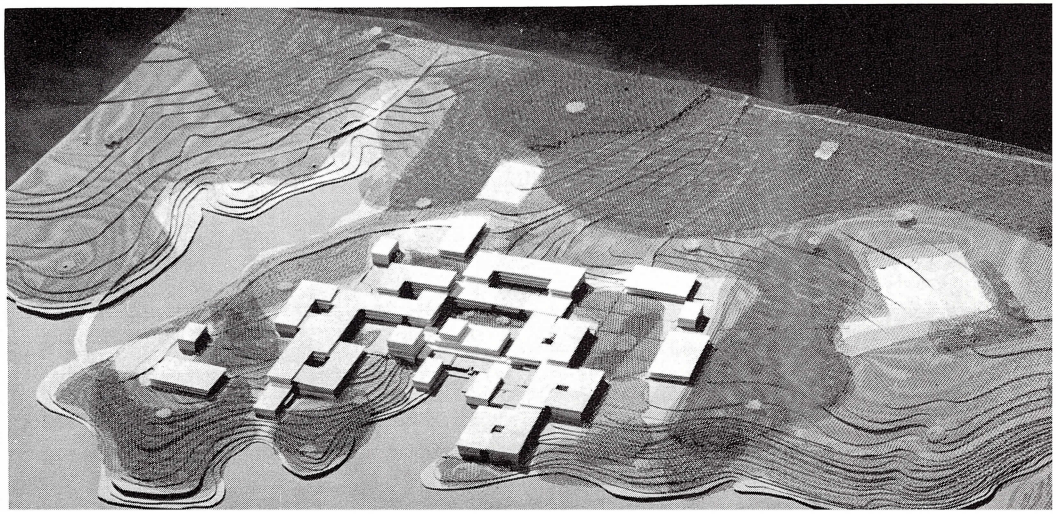
Prerequisites: ARC 201, EM 211, LAR 201, PY 211
Required of third year students in Architecture.
Continuing exercises in architectural design, based on larger buildings with more complex interior and exterior relationships. Emphasis on the problems of functional planning, research on building requirements, and recognized methods of construction. Architectural concrete, acoustical materials, plaster, and dry-wall construction; second semester, miscellaneous metals, metal doors and windows.











BO 441 Plant Ecology LAR 3(2-3) f

Prerequisite: BO 103

An introduction to the study of plants in relation to their environment. Major topics considered are: factors of the environment; the structure, analysis, and dynamics of plant communities; past and present distribution of vegetation types.

CE 338 Structures I ARC 4(3-0) f

Prerequisite: EM 211

Required of third year students in Architecture.

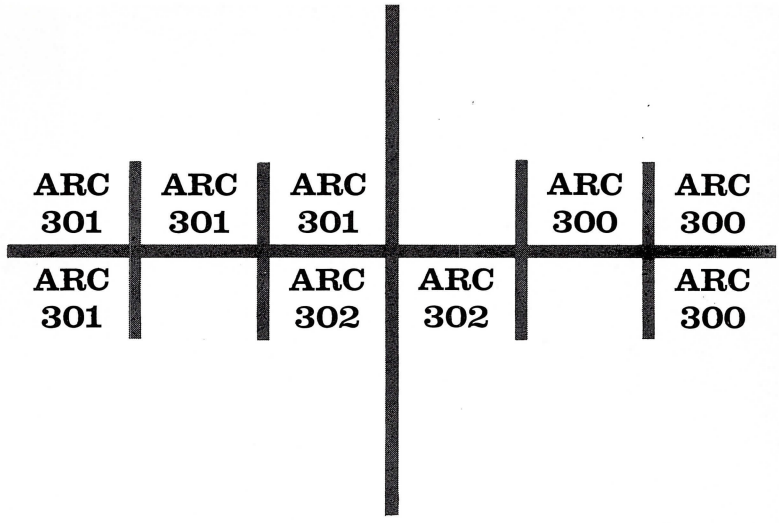
Analysis of simple structures; reactions, shear and moment diagrams; stresses in members of framed structures; graphic statics.

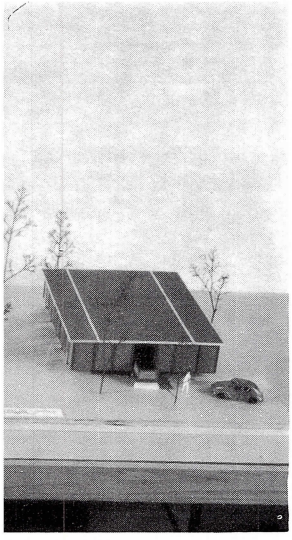
CE 339 Structures II ARC 4-3-0) s

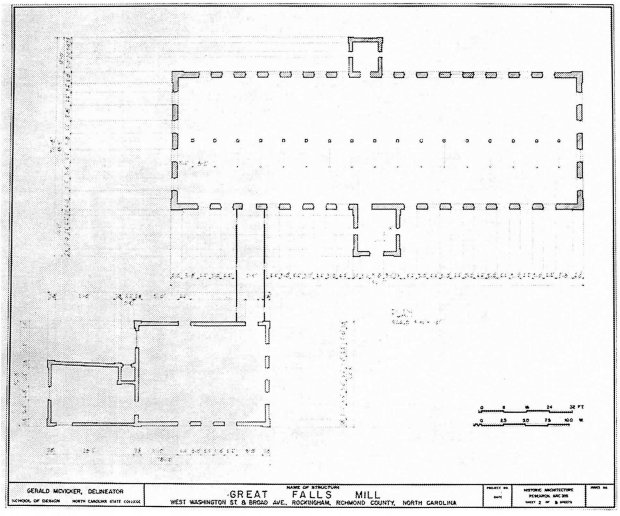
Prerequisites: CE 338 and EM 212

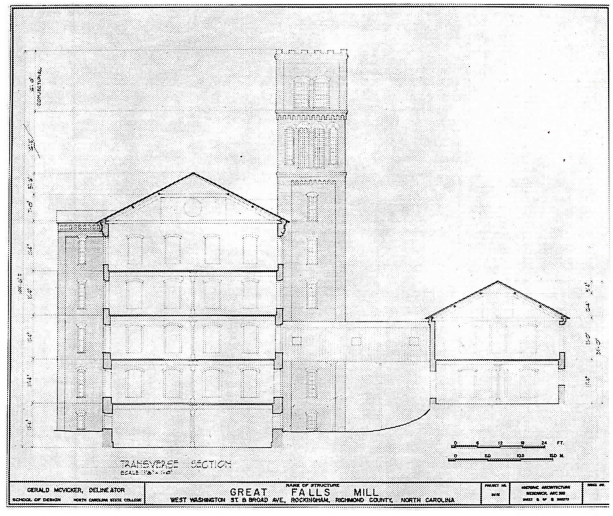
Required of third year students in Architecture.

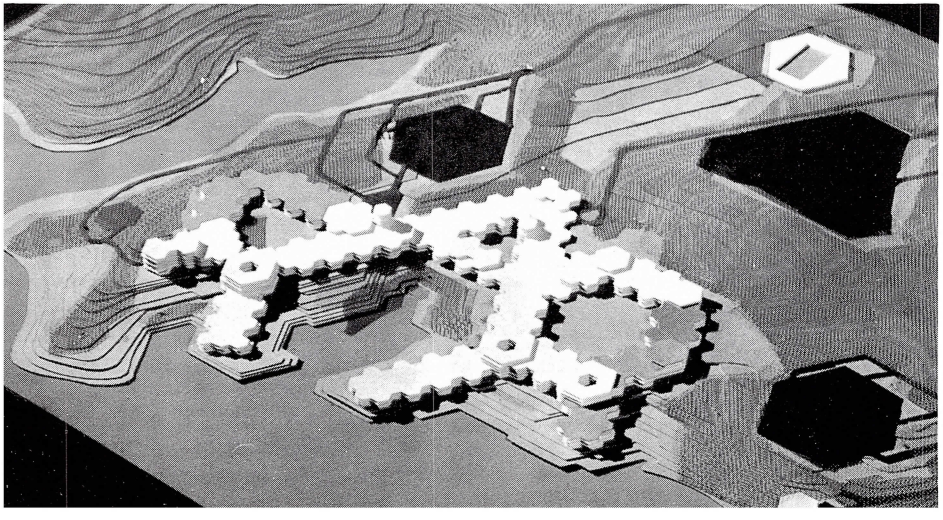
Analysis of indeterminant structures; slopes and deflections; analysis of indeterminant frames by moment distribution.

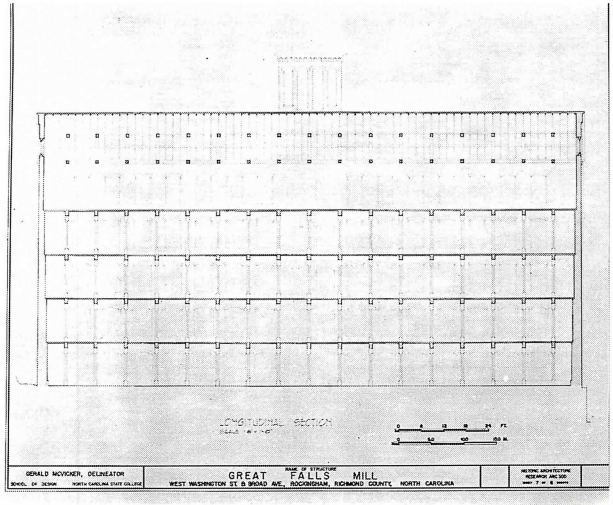












CH 101 General Chemistry I PD 4(3-2) f s

The language of chemistry, fundamental chemical laws and theories, limited study of selected chemical elements, compounds, reactions, and processes.

CH 103 General Chemistry II PD 4(3-2) f s

Prerequisite: CH 101

Homogeneous and heterogeneous equilibrium, oxidation and reduction, metallurgy, fundamental properties of metals, non-metals and their compounds, introductions to organic and nuclear chemistry, industrial applications of some metals, non-metals and their compounds. The laboratory work is mostly semimicro qualitative analysis.

DN 311, 312 Advanced Descriptive Drawing I, II
ARC, LAR, PD 2(0-6) f s

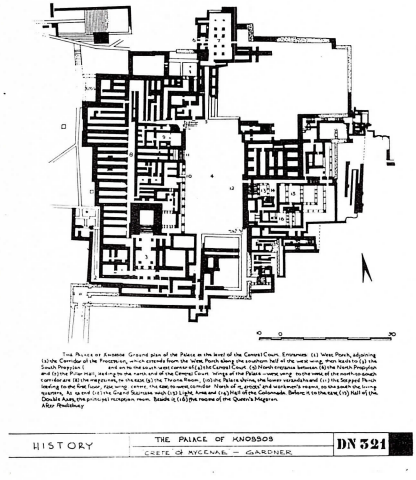
Extension of problems introduced in first and second year drawing on a more advanced level. Problems will involve the human figure and its environment and investigate techniques to increase the ability of the student to express his ideas in varied forms.

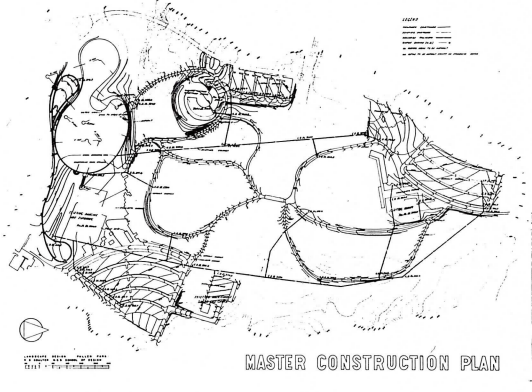
DN 321, 322 History of Design I, II
ARC, LAR 3(3-0) f s

Prerequisite: HI 245

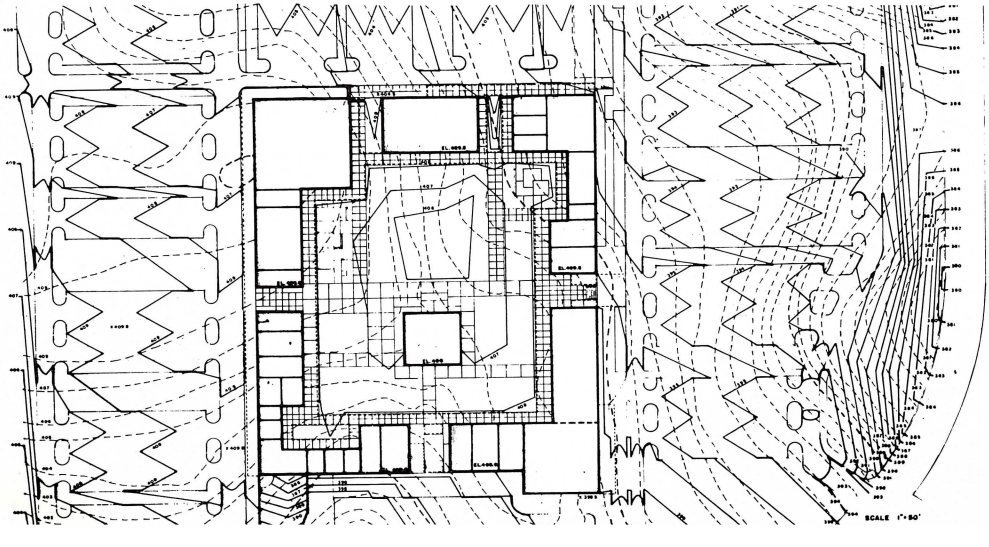
Required of all students in Architecture and Landscape Architecture.

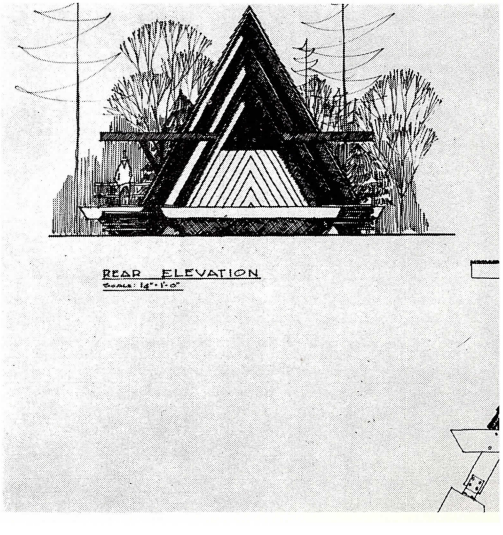
A critical study of architecture from prehistoric times to the present including references to landscape architecture, painting, sculpture, and artifacts.









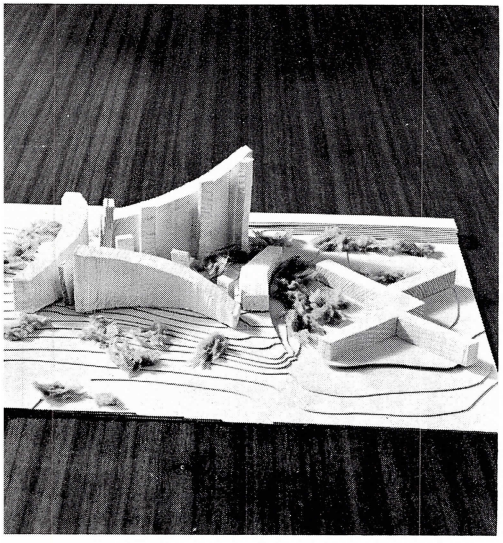


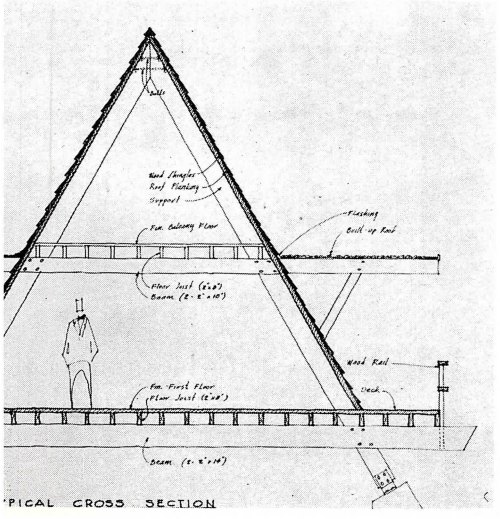
EM 211 Introduction to Applied Mechanics
PD 3(3-0) f

EM 212 Mechanics of Engineering Materials
ARC, PD 3(3-0) s
A study of the properties of engineering materials with special emphasis on the mechanical parameters. It is especially conceived to prepare the student for the selection and specification of materials common to engineering practice. A particular emphasis is given to mechanical aspects of materials employed in design.

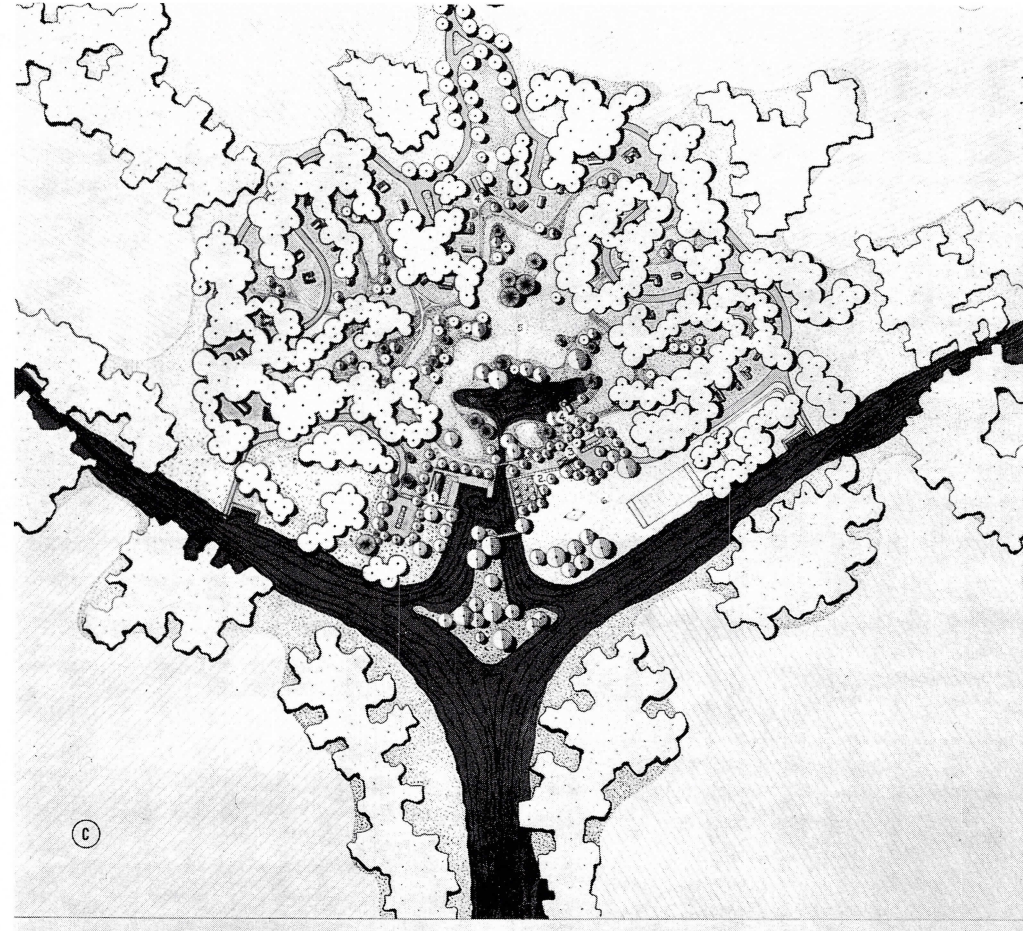
LAR 301, 302 Landscape Design II, III LAR 5(2-9) f s
Prerequisites: ARC 201, LAR 201
The survey, investigation and analysis of the site. Expansion of first and second year design principles. Solution of small scale three-dimensional spatial complexes.

DN 321	LAR 311	DN 312	ARC 301		LAR 301
LAR 311		ARC 301			





TYPICAL CROSS SECTION



ENLARGEMENT OF 'B' SHOWING A TYPICAL VILLAGE
1. VILLAGE SHOPS
2. COMMUNITY BUILDING
3. PRIMARY SCHOOL
4. CHURCH
5. VILLAGE GREEN
6. RECREATION

FEET IN HUNDREDS

design details

LAR 311 Landscape Technology I **LAR 4(3-3) f**
Prerequisites: MA 111 or 112; ARC 201; LAR 201
Beginning course in the technical aspects of site development. Grading, earthwork quantity computation. Surface runoff and drainage systems. Vehicular circulation principles and techniques. Landscape materials.

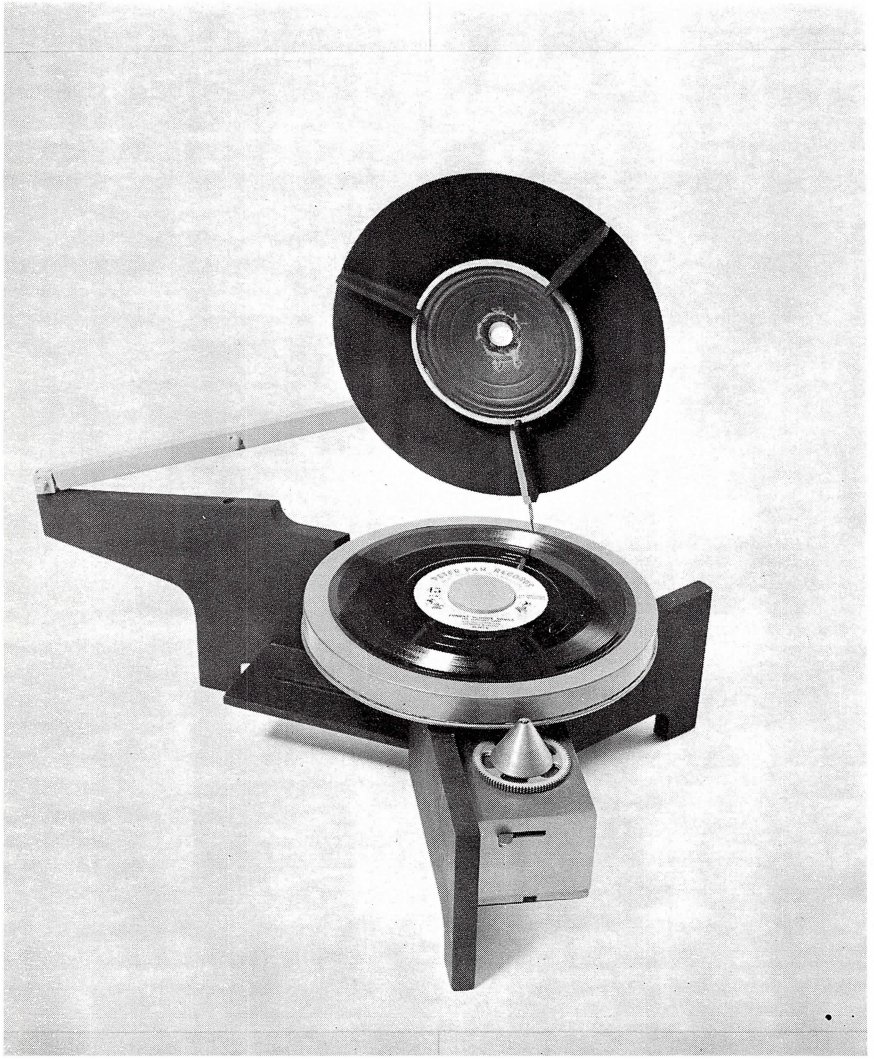
LAR 312 Landscape Technology II **LAR 4(3-3) s**
Prerequisite: LAR 311
Continuation of LAR 311. Site surveying principles. Advanced grading and earthwork. Horizontal and vertical alignment of roads. Road construction. Sanitary sewer system layout. Landscape materials. Correlation with LAR 302.

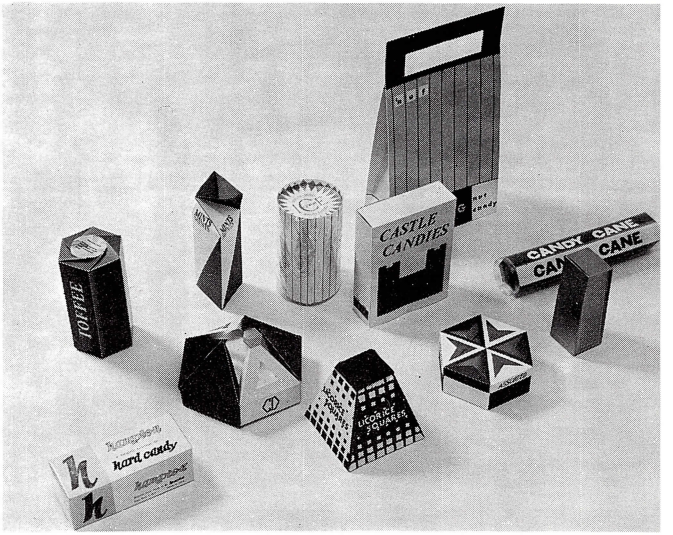
MIM 201 Structure and Properties of Engineering Materials I **PD 2(2-3) f**
An introduction to the fundamental physical principles governing the structure and constitution of metallic and non-metallic materials of construction, and the relation of these principles to the control of properties.

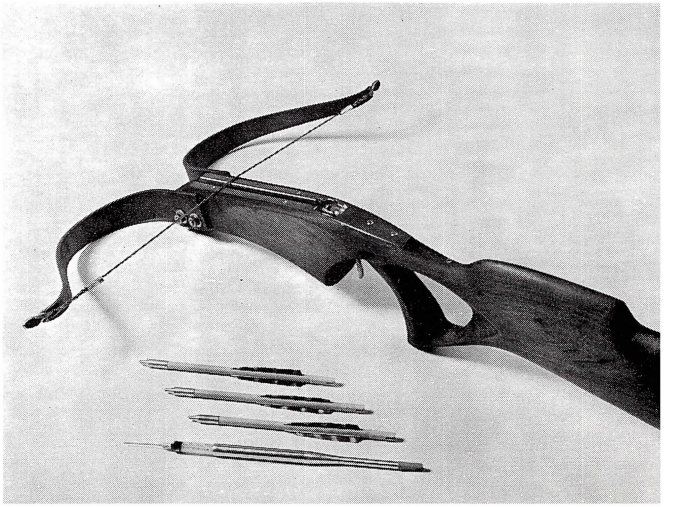
MIM 202 Structure and Properties of Engineering Materials II **PD 2(2-3) s**
Important applications of engineering materials and criteria for selection of materials.

PD 301, 302 Product Design **PD 6(3-6) f s**
Prerequisite: PD 202
Required of third year students in Product Design.
Manufacturing and structural considerations in the design of a wide range of products.

PD 322 Design Graphics and Packaging **PD 3(0-6) s**
Basic disciplines in graphic design, packaging, typography and layout. Mass production of packages, display techniques and market analysis.







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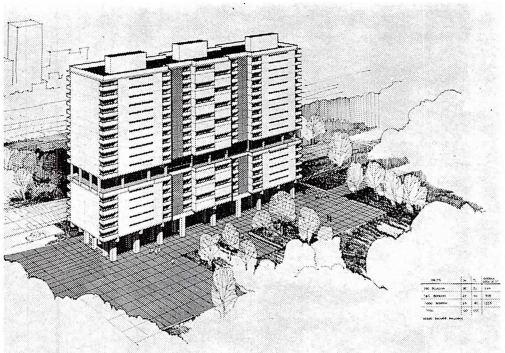
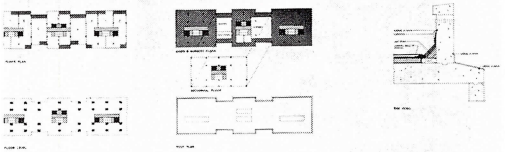
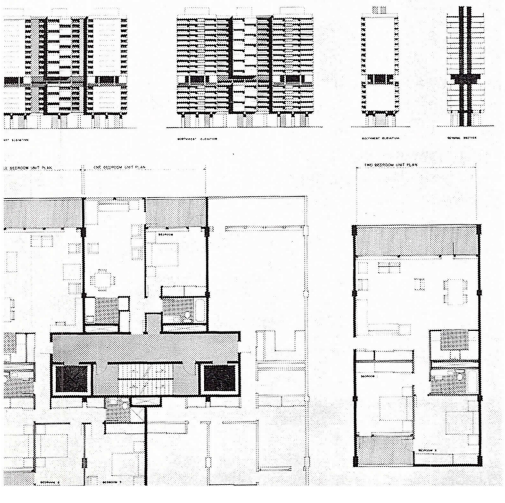
PD 301 | PD 322 | PD 302 | ARC 401 | ARC 402 | ARC 402

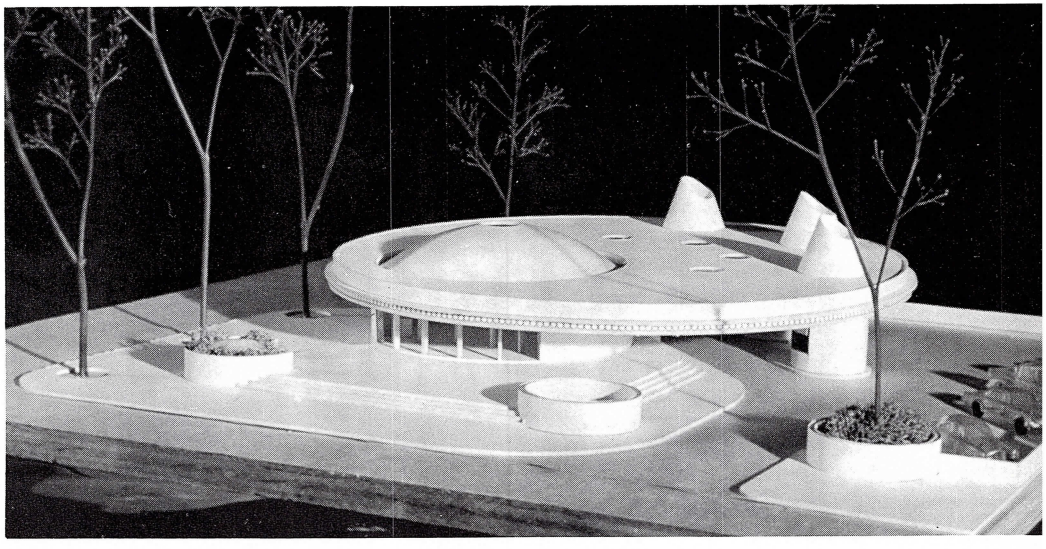


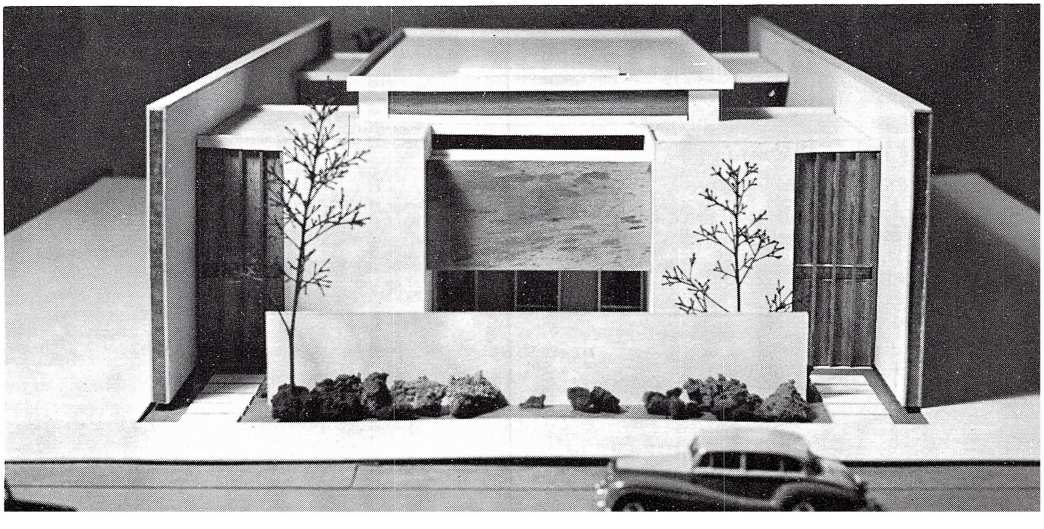
A MULTI-STORY APARTMENT BUILDING

KOPPERS ARCHITECTURAL STUDENT DESIGN COMPETITION









ARC 401, 402 Architectural Design IV, V
ARC 6(3-12) f s

Prerequisites: ARC 302, CE 339, EM 212
Required of fourth year students in Architecture.
The design of large buildings or building complexes and economic and sociological influences on them, stressing the use of technology and industrialization. Emphasis on the logical coordination of the many factors of building design. Curtain wall construction, caulking, and sealants; second semester, hardware, paints, and thermal insulation.

ARC 421, 422 Structural Design I, II ARC 3(3-3) f s

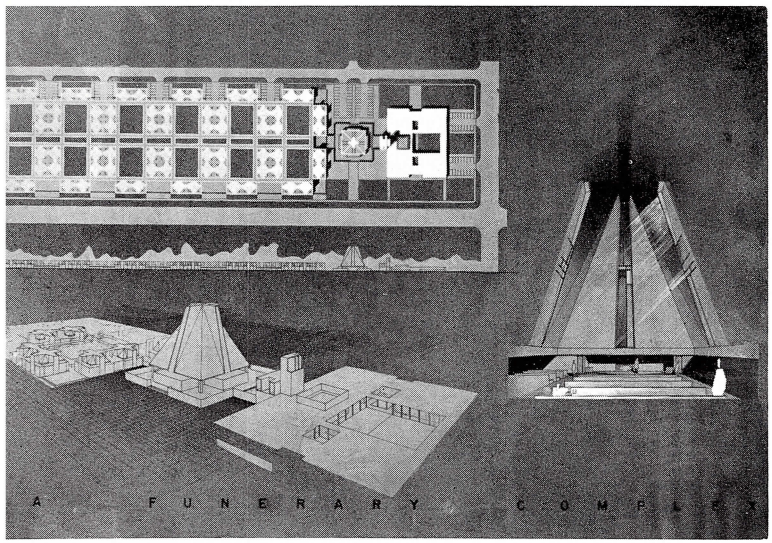
Prerequisite: CE 339
Required of fourth year students in Architecture.
Principles and applications of steel and timber design; principles and application of reinforced concrete design; and elements of foundations.

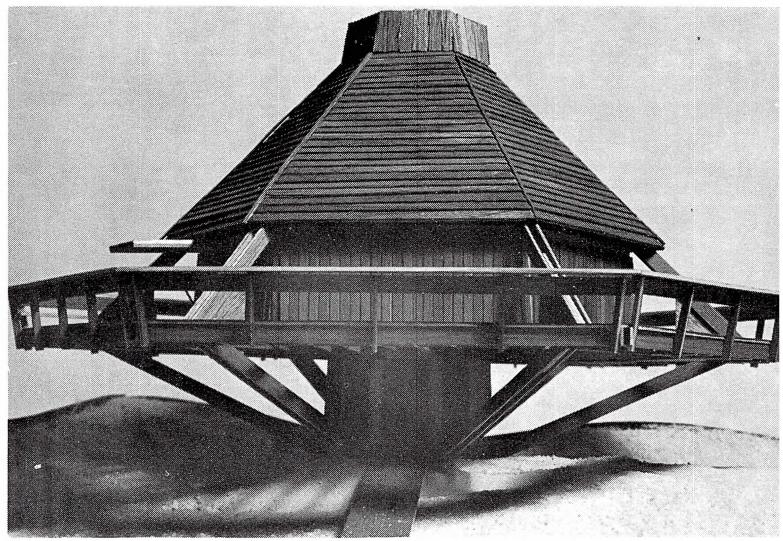
ARC 431, 432 Environmental Factors
ARC, LAR 3(3-0) f s

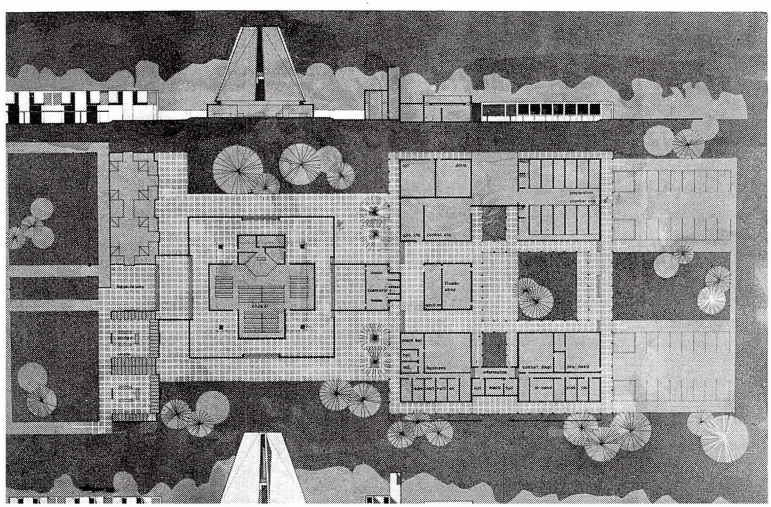
An investigation of environmental factors affecting architectural design. Heating and cooling systems; and controls and principles of plumbing including venting, drainage, demand and load calculations, water distribution, pipe sizing, storm drainage and sprinkler systems. Lighting and acoustical design and electrical equipment and design.

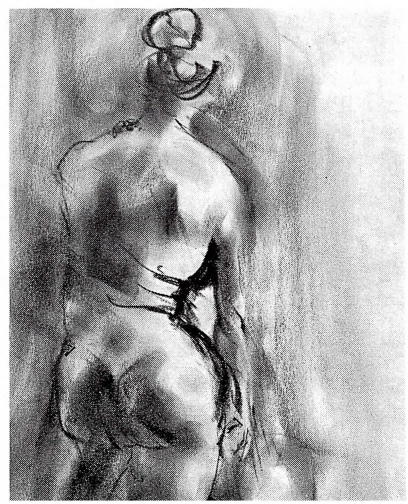
DN 411, 412 Advanced Descriptive Drawing III, IV
ARC, LAR, PD 2(0-6) f s

Prerequisite: DN 312
Required of fourth year students in the School of Design.
Advanced problems in the fields of painting, sculpture, and graphics, and photography.











DN 421, 422 History of Design III, IV
ARC, LAR 3(3-0) f s

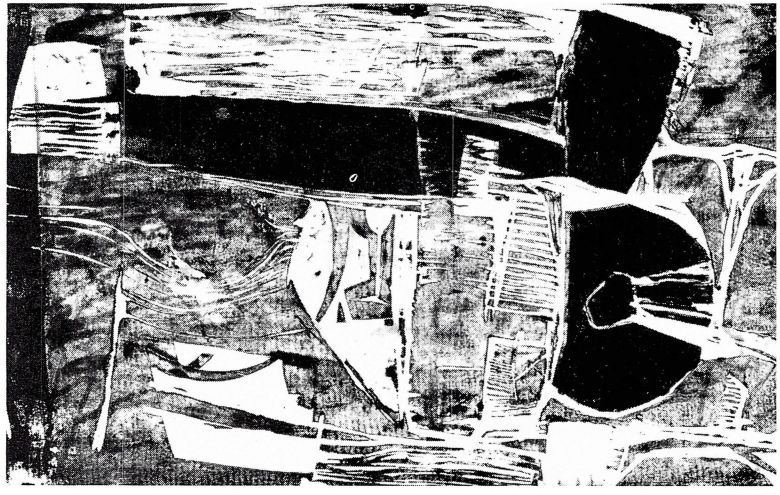
Prerequisite: HI 246
Required of all students in Architecture and Landscape Architecture.
Specialized historical studies in design fields.

LAR 311 Landscape Technology I ARC 4(3-3) f

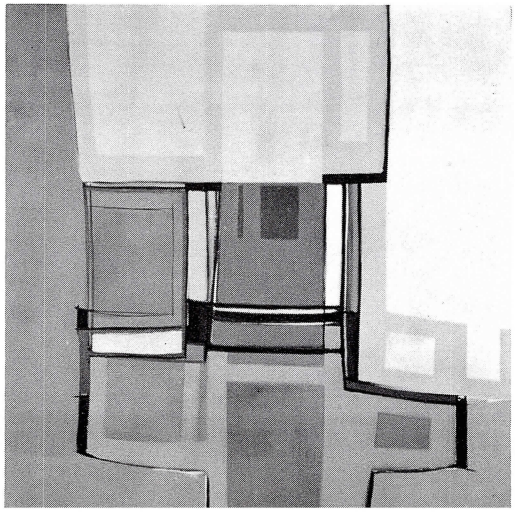
ARC 401		ARC 401	DN 412	DN 411	DN 412
ARC 401	DN 412	DN 412	DN 412	DN 412	DN 411

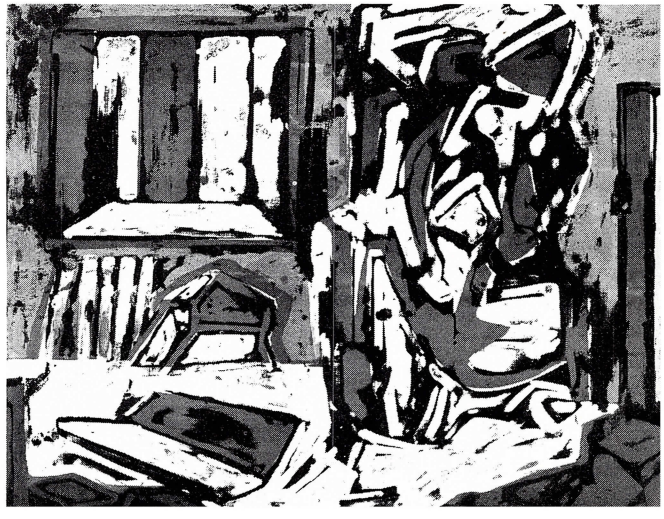












LAR 401, 402 Advanced Landscape Design I, II **LAR 6(3-9) f s**

Prerequisite: LAR 302
Ecological and geographic determinants in site planning and design. Emphasis on the design of predominantly non-structural landscapes. Correlation with LAR 421, 422.

LAR 421, 422 Landscape Technology III, IV **LAR 4(3-3) f s**

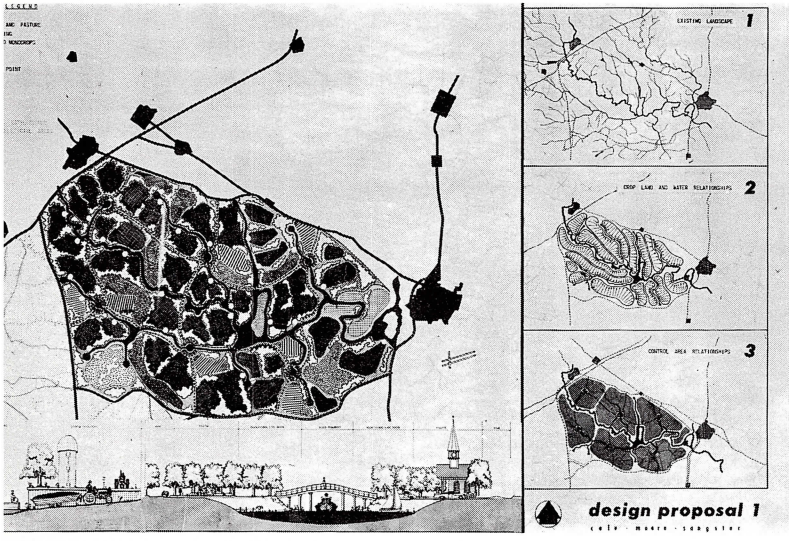
Prerequisite: LAR 312
The appraisal of plants as objects and their arrangement in the landscape. Soil mechanics, structures, and fertility. Irrigation, drainage structures and exterior illuminations. Construction graphics. Correlation with LAR 401, 402.

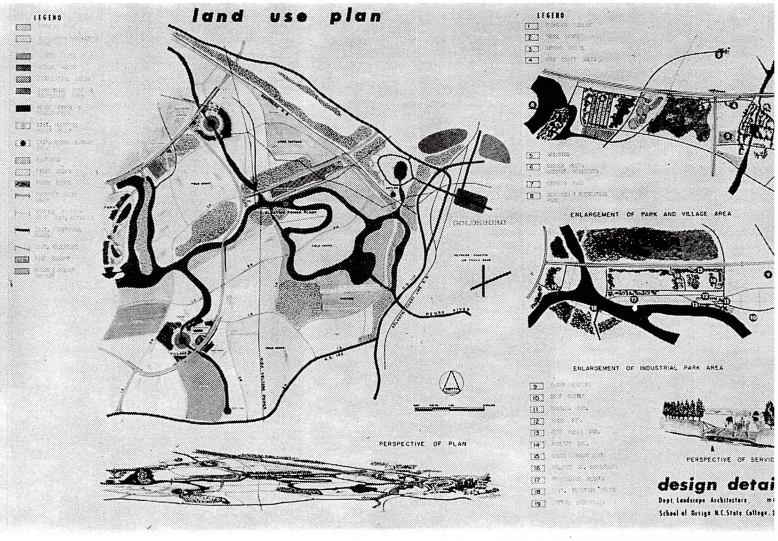
PD 401, 402 Advanced Product Design PD 6(3-6) f s

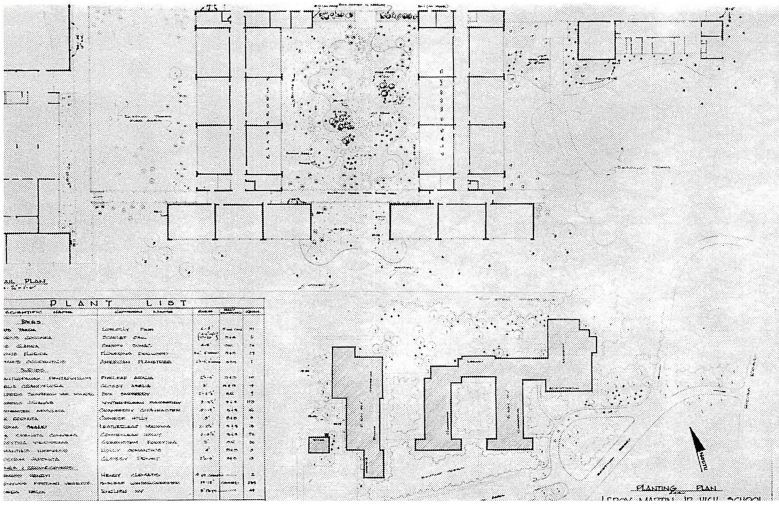
Prerequisite: PD 302
Required of fourth year students in Product Design.
Continuation of Product Design into more complex systems. Emphasis is placed on functional innovation and integration of form and structure. Thorough analysis of fabrication by models and sketches.

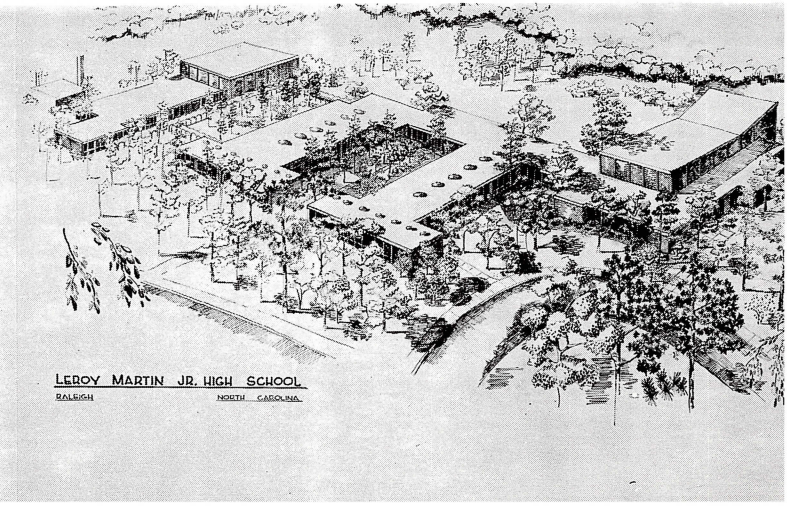
PD 441, 442 Design Analysis PD 2(2-0) f s

Prerequisite: PSY 200
Required of fourth year students in Product Design.
Seminar on imaginative problem solving. Individual and group operational techniques in the spectrum of creative thought.







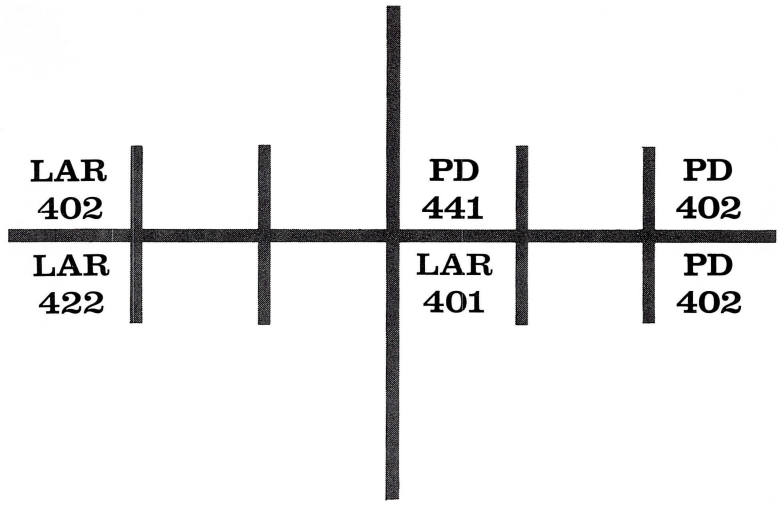


PSY 441 Human Factors in Equipment Design PD 3(3-0) s

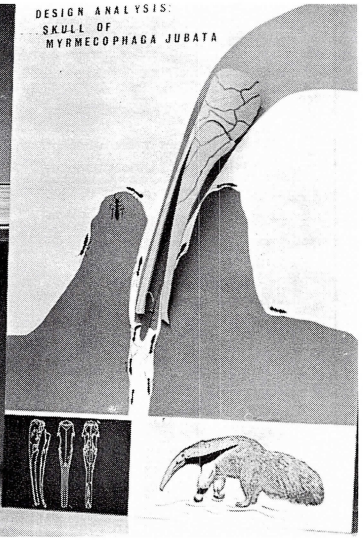
Prerequisite: PSY 200
Human factors in the design of machines and other equipment. Items of equipment are understood as extensions of man's capacity to sense, comprehend, and control his environment. Includes problems in the psychology of information, communication, control, and invention.

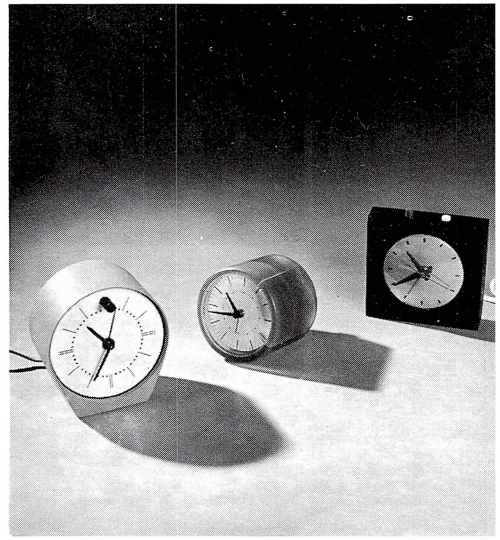
PSY 464 Visual Perception for Designers PD 3(3-0) f

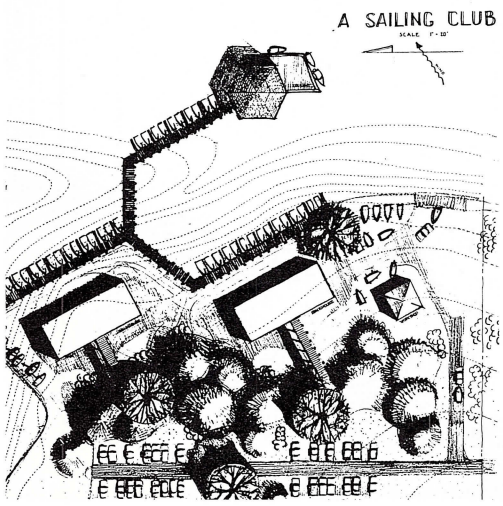
Prerequisite: PSY 200
The nature of the seeing process and its relation to architecture, industrial arts and to the industrial, engineering and textile design fields. Topics include the basis of sight, perception of color and form, vision and illumination, psychological factors in visual design, and a unit of training planned to improve the student's ability to perceive visual form.













ARC 501, 502 Architectural Design VI ,VII
ARC 6,8(3-12)

Prerequisites: ARC 402, ARC 300
Required of fifth year students in Architecture.
A continuation of ARC 401, 402 with special emphasis on the development of arch-typical designs and the use of subjective selection by the designer. An architectural thesis is required in the spring semester.

ARC 511, 512 Professional Practice I, II
ARC 2(2-0) f s

Prerequisite: 4th year standing
Required for graduation in Architecture.
A study of form and content of contracts, specifications, and standard contract documents; relationship and responsibilities of architects to clients and third parties; legal and ethical considerations of architectural practice; office organization.

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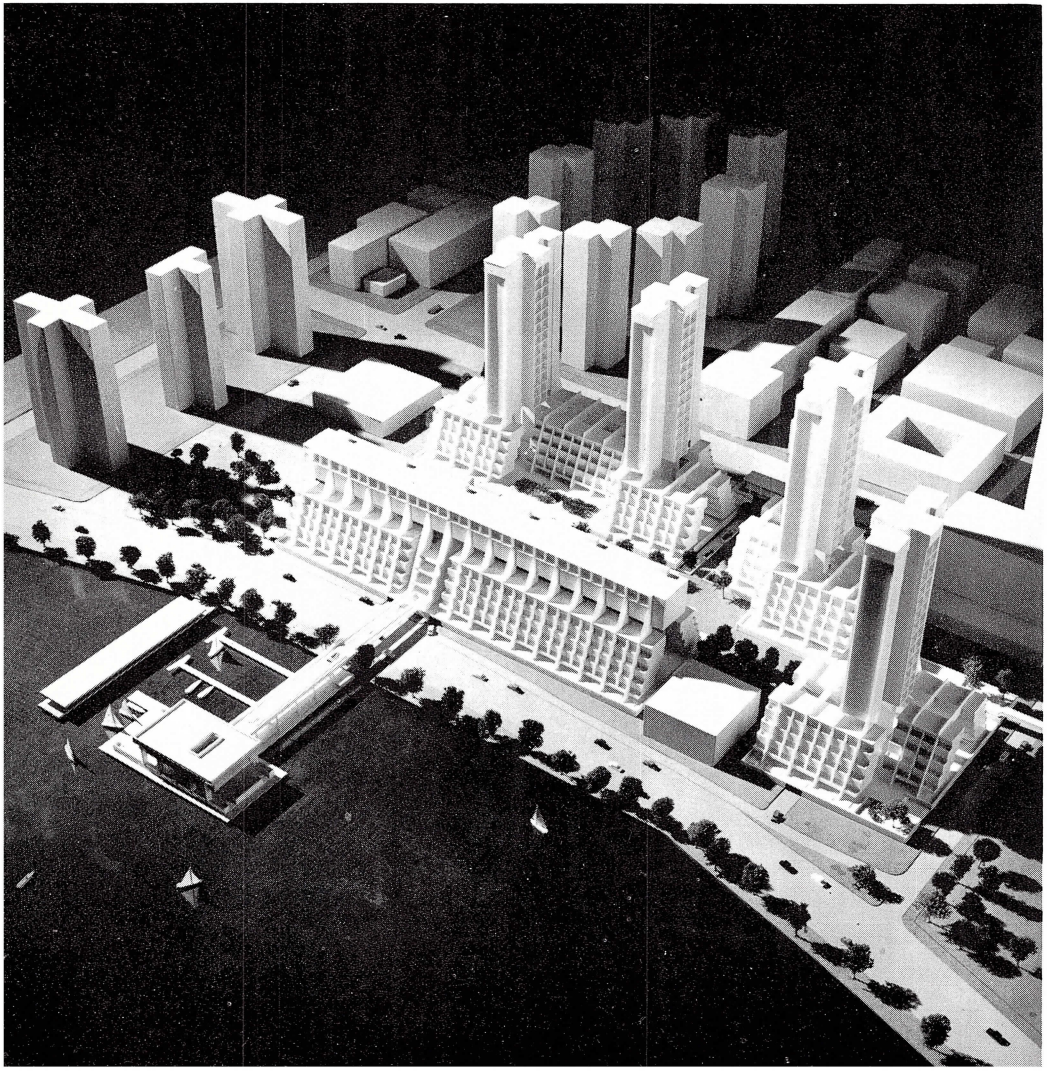
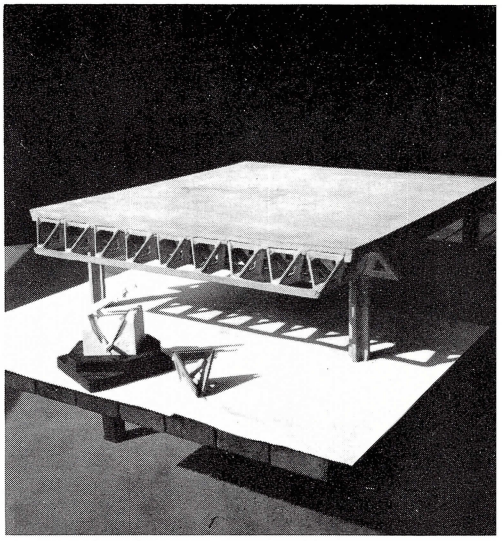
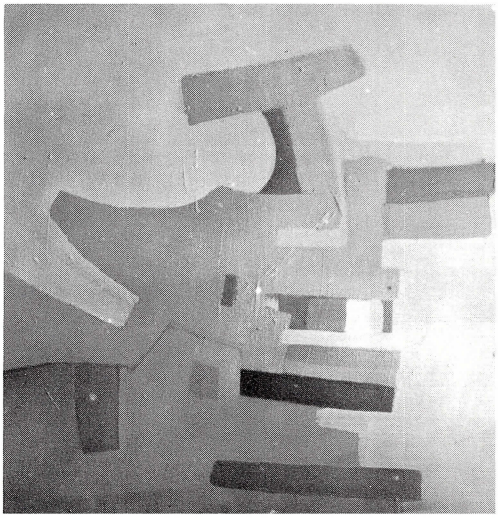


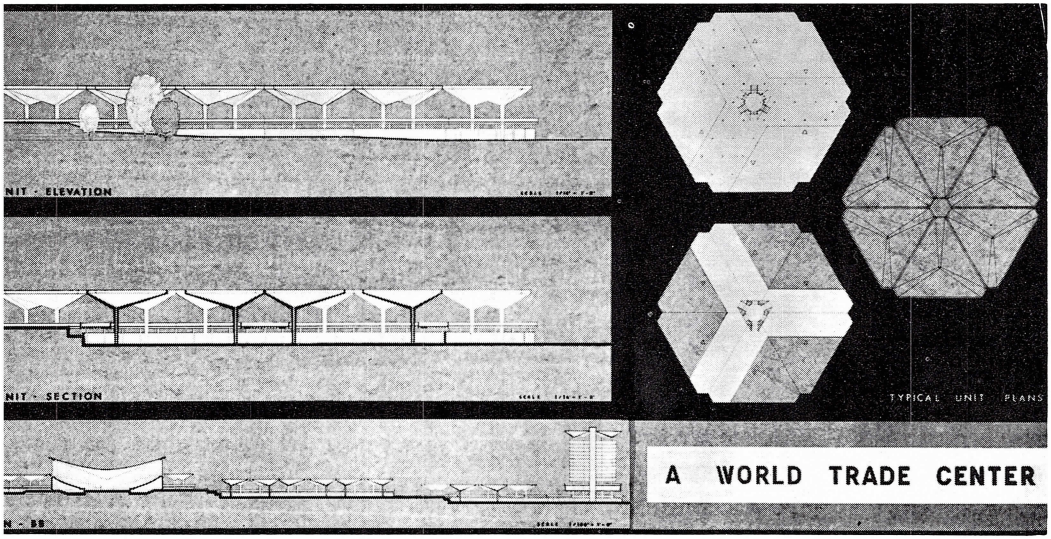


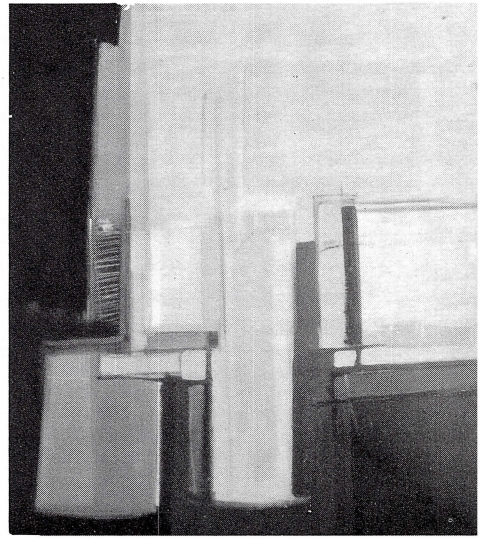


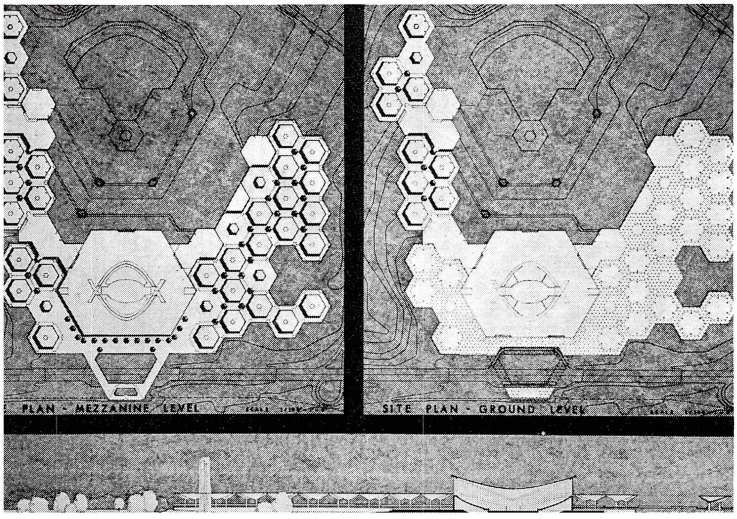
ARC 531, 532 Structural Design III, IV ARC 2(2-3) f s
Prerequisite: ARC 422
Required of fifth year students in Architecture.
Comparative study of structures and structural elements; their possibilities and limitations; review and discussion of structural principles. Engineering consultation.

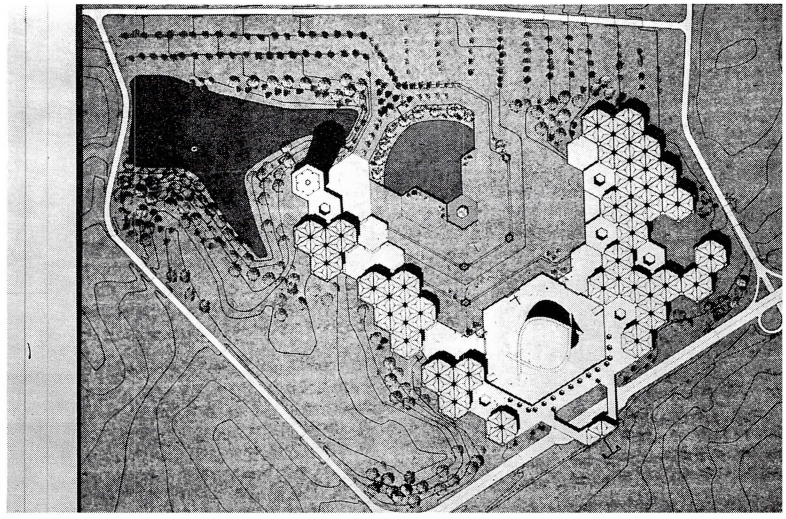
DN 511, 512 Advanced Descriptive Drawing V, VI
LAR, PD 2(0-6) f s
Prerequisite: DN 412
Required of fifth year students in Landscape Architecture and Product Design.
Advanced problems in the fields of painting, sculpture, photography, and graphics.

ARC 502	ARC 531	ARC 501	DN 512
	DN 512	ARC 501	ARC 501









DN 541 Seminar on Ideas in Design
ARC, LAR, PD 2(2-0) f

Co-requisite: ARC 501, LAR 501, or PD 501
Required of fifth year students in the School of Design.
An introduction to aesthetics and the relationships of philosophic thought to design.

LAR 501, 502 Urban & Regional Design, I II
LAR 8, 8(4-12) f s

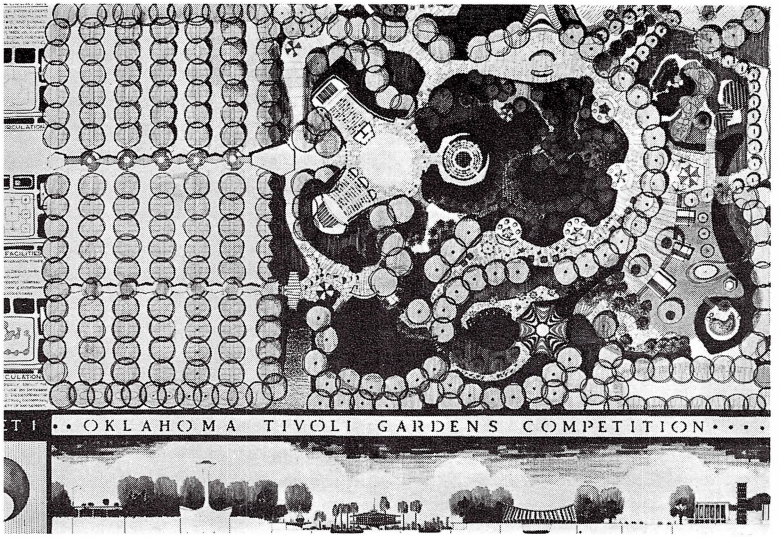
Prerequisite: LAR 402
Regional research and analysis. Social criteria of Urban and Regional Design. Transportation systems, land use determination and the design of large scale environmental complexes.

LAR 511 Advanced Landscape Technology I
LAR 4(3-3) f

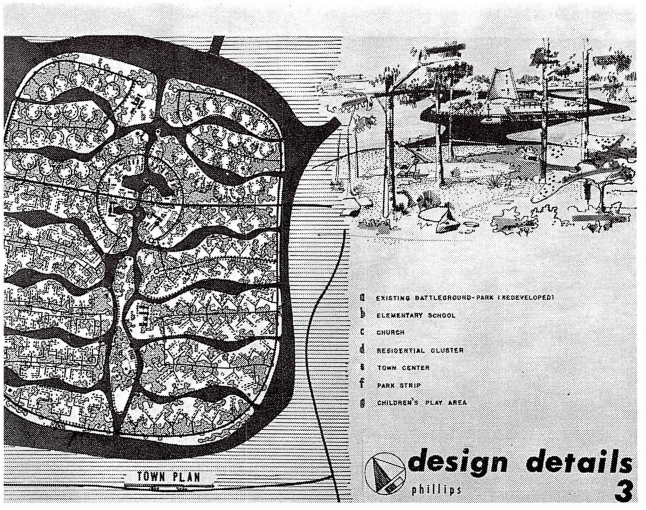
Prerequisite: LAR 422
The design and construction of landscape elements. Structures, materials and working drawings. Cost estimation.

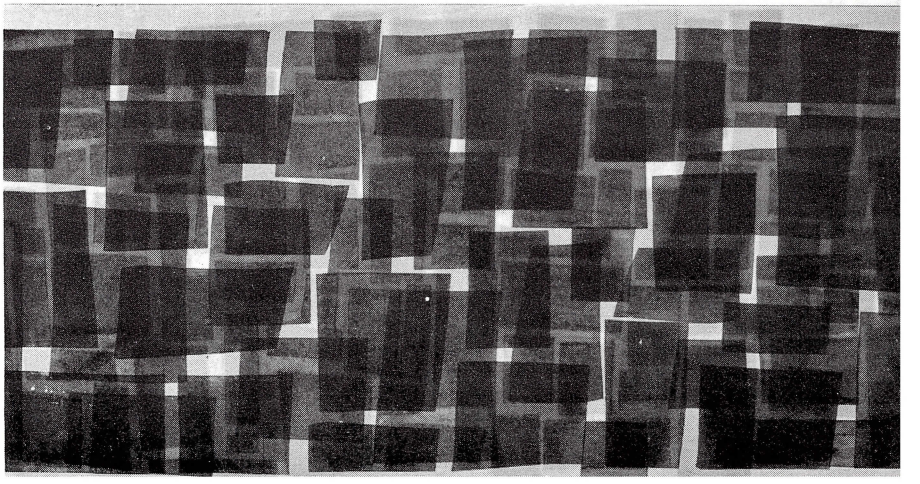
LAR 512 Advanced Landscape Technology II
LAR 4(3-3) s

Prerequisite: LAR 511
Contracts, specifications and bidding. Office practice and procedure. Ethics and law.







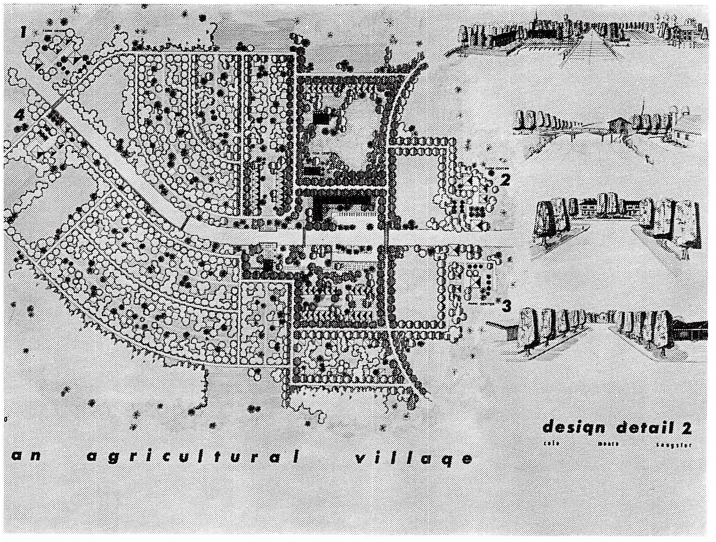


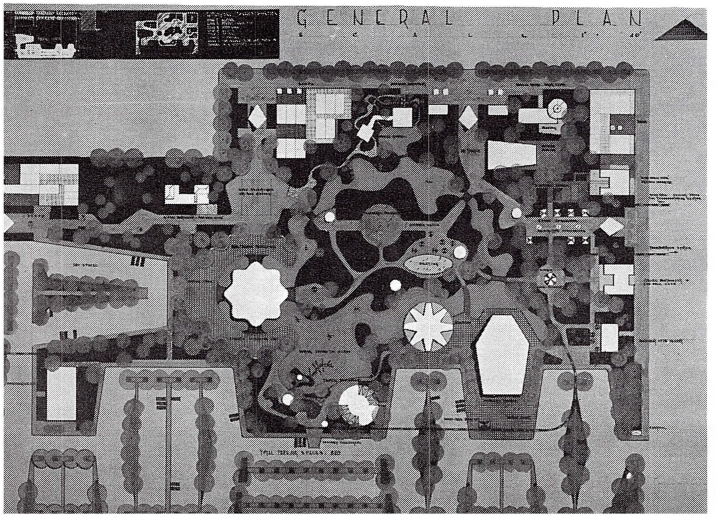
PD 422 Office and Industrial Practice PD 2(2-0) s
Prerequisite: PD 302
Required for graduation in Product Design.
Study of the ethics, organization, and procedures of professional product design practice; patent law.

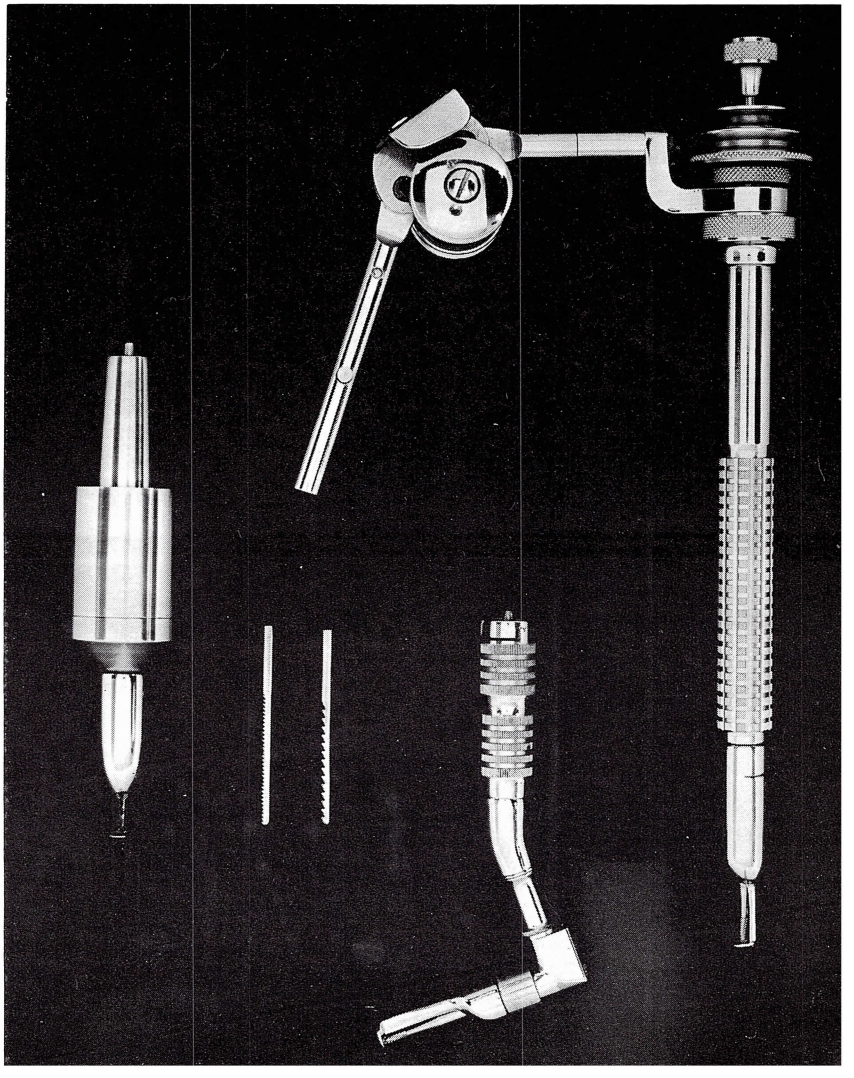
PD 501 Advanced Product Design PD 7(3-10) f
Prerequisite: PD 402
Required of fifth year students in Product Design.
Continuation of emphasis on new product design and development, with reference to current developments in automatic fabrication and assembly.

PD 502 Product Design Thesis PD 9(3-12) s
Prerequisites: PD 501, PD 442
A one semester project chosen by the student in his area of major interest, with faculty guidance. Independent research and development of functional contribution, including complete programming of manufacture and distribution systems appropriate to the design.

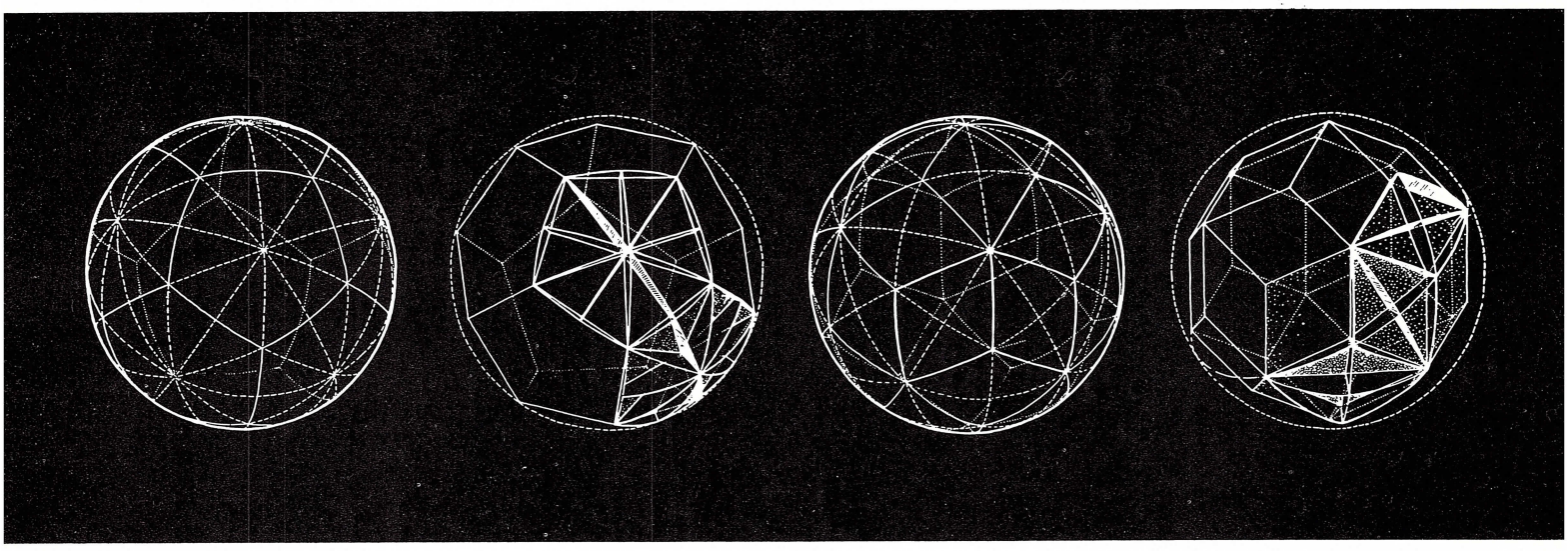
LAR 502		LAR 502	LAR 501	PD 502
LAR 501		DN 512	LAR 502	







Faculty Research



Research into the Orderly Subdivision of Space

A project, under the direction of Professor Duncan Stuart, which has been continuing periodically over the last several years and has in the past produced such results as the director's "Orderly Subdivision of Spheres," a study of the subdivision of spherical surfaces primarily from the point of view of minimization of kinds of elements. (see *Student Publication of the School of Design*). The continuing studies concern themselves with the study of Polyhedra and Mosaics from the point of view of a transformation group. Particular interest is being focused in the direction of the problems of closest packing and of maximum isotropy. The concrete results of this work so far have been a 25-minute film "Polyhedra" (16mm. sound) and an article for the *Student Publication of the School of Design* "The Orderly Subdivision of Space."

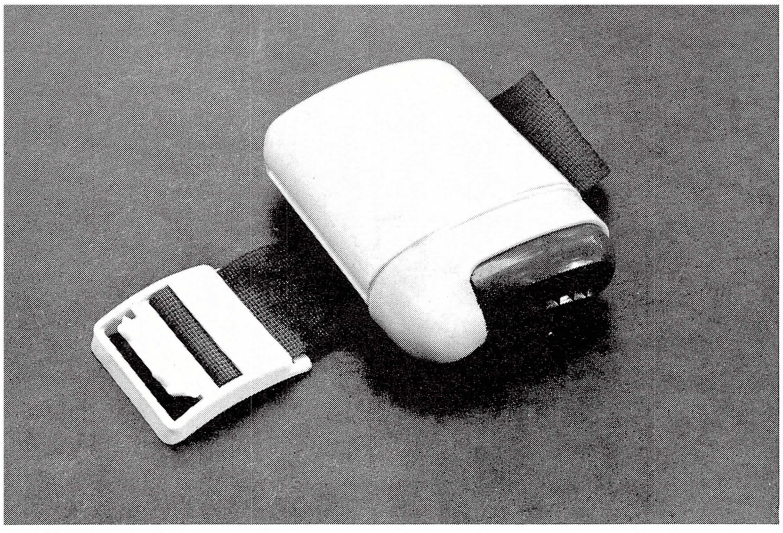
Research on Architectural Structures

A continuing research into self-supporting membranal structures is being carried on. Work on structures of this character was initiated in 1953 by Professor Horacio Caminos. At the present time Professors Charles H. Kahn and Wayne Taylor are in the process of erecting a full-scale 60′ canvas membrane of the pure tension family of this geometry. In addition to this, both Professor Kahn and Professor Taylor have scheduled research projects into long span prefabricated systems of varied geometries. During the 1963-64 year, Professors Zenon Zielinski and Jerzy E. Glowczewski will be carrying on a research project on prototype structures based on prestressed technology. This research will be carried on in collaboration with the Civil Engineering Department of the College.

Research on Solar and Decorative Screens

An increasing number of solar and decorative screens are being used in architecture today. The majority of these screens are produced commercially, utilizing a single element which is incessantly repeated in the final construction, producing an effect which is aesthetically barren and the function of which many times is questionable. George L. Bireline, Jr. is making an investigation in order to engage the artist in this area of architectural design. He believes it is possible to compete economically with commercially-produced screens by an imaginative use of existing materials and production methods, but most important the artist will be able to design a screen (in collaboration with an architect) of which the aesthetic qualities and function are integral elements in the completed building.





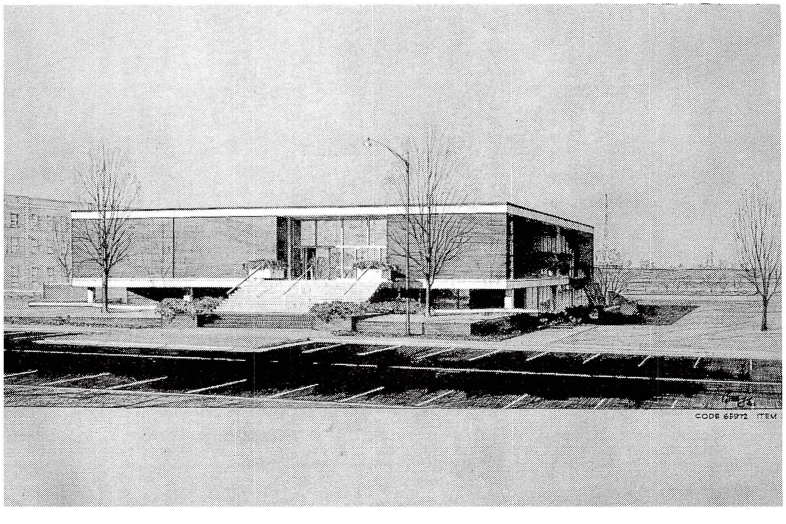
WILLIAM J. BARON

Industrial Designer. Assistant Professor of Product Design. Teaching fourth year Product Design and Descriptive Drawing. B. A. in Industrial Design, University of Illinois, 1958. Designer for United States Information Service Traveling Exhibit "Industrial Design Education, U.S.A.", 1957. American Society of Industrial Designers Award, 1958. Department Head for the Container Corporation Specialty Division. Private practice and consulting in product design, planning and development, graphic and package design. Design activities include U.S. patents held privately and with corporations, 1958 to date. Work published in various U.S. magazines and journals. Painting and sculpture exhibited in Chicago, Champaign, Milwaukee, and Raleigh. Member of the American Craftsmen's Council. East Coast Regional Chairman of the Industrial Design Education Association.



GEORGE L. BIRELINE, JR.

Painter. Associate Professor of Design. Teaching first year Design and Descriptive Drawing. B.F.A. Bradley University, 1949. M.A.C.A. University of North Carolina at Chapel Hill, 1963. Technical Director Raleigh Little Theater, 1955-56. Mural, Mecklenburg County Office Building, Charlotte. Solar screen, Peoples Federal Savings and Loan Association, Florence, South Carolina. 1952 Art Scholarship Competition sponsored by the North Carolina Federation of Women's Clubs. Exhibited, New York City; Philadelphia; Washington, D. C.; South Bend; Chicago; Florida; Tennessee; Alabama; and Georgia. 1st Prize Oil, Michiana Regional 1950. N. C. Artists Annual, Award Winner 1957. Listed *Art in America*, 1957. Honorable Mention, Painting of the Year, Atlanta, Georgia, 1958. 2nd Annual Purchase Exhibition, East Tennessee State College, 1959; Ford Foundation Program for the Visual Arts Purchase Award from national jury 1959. N. C. Museum of Art, Wood Block Purchase 1961. First Prize Oil, Artists Competition, Winston-Salem Gallery of Fine Arts, 1962. N. C. Artists Annual, Painting L-1963 purchased from exhibition.



JOSEPH N. BOAZ

Architect. Associate Professor of Architecture. Chairman of second year Architectural Design instruction. Teaching Professional Practice, Architectural Design, and Technical Drawing. B. Arch. and B.S. Arch. Engr., University of Oklahoma; M.S. Arch., Columbia University, 1941. Taught at Yale and Columbia Universities; Visiting Critic at Cornell, Syracuse, and Virginia Polytechnic Institute. Completed projects published and exhibited in the United States and abroad. Member, American Institute of Architects and recipient of regional citation and several state awards of merit by the American Institute of Architects. Most recently completed major project is the new cafeteria at North Carolina State, designed before joining faculty.

LEWIS CLARKE



Landscape Architect. Professor of Landscape Architecture. Teaching Landscape Design, Landscape Technology, and History of Design. Dip. Arch. (Leics) 1950, Dip. L.D. (Dunelm) 1951, England. M.L.A. Harvard University, 1952. Member, American Society of Landscape Architects. Associate of the Royal Institute of British Architects, and British Institute of Landscape Architects. Smith-Mundt Fellowship and Fulbright grant. 1951. Co-prize winner, Carson Pirie Scott Competition. First Honor Award, ASLA, House and Home Outdoor Living Competition, 1962. Four national awards in the American Association of Nurserymen "Plant America" Competition, 1962. Panelist, International Design Festival, Aspen, Colorado, 1955; and Urban Design Conference, Harvard, 1963. Lectured and taught at Harvard, University of Pennsylvania, University of Louisiana. Research on design and plant growth in artificial environments. Landscape Architect, St. Andrews College; Whitaker Park, Winston-Salem; Research Triangle Park, and enclosed mall shopping centers in Charlotte; Roanoke; Philadelphia; San Antonio; Pittsburgh; Louisville; and Baltimore. Various articles and work published in the United States and the United Kingdom.

JOSEPH H. COX

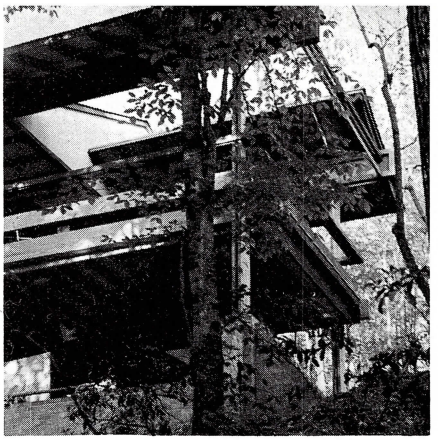


Painter. Professor of Design. Chairman of Descriptive Drawing instruction. Teaching Descriptive Drawing. B.F.A., John Herron Art Institute, 1938. M.F.A., University of Iowa, 1941. Teaching experience: University of Iowa, University of Tennessee, University of Florida. Exhibited nationally and regionally and represented in several museums and private collections. Prizes in the Indiana Artists Show, Fourth Memphis Biennial, Painting of the Year Exhibition, Atlanta Southeastern Exhibition, Atlanta. Mint Museum Purchase Award, Charlotte. Recipient of a Tiffany Scholarship in 1941. Murals in Indiana, Michigan, Tennessee, and North Carolina; most recent an exterior panel in stained glass and anodized aluminum on the Branch Banking and Trust Company, Raleigh, North Carolina.

FRED EICHENBERGER

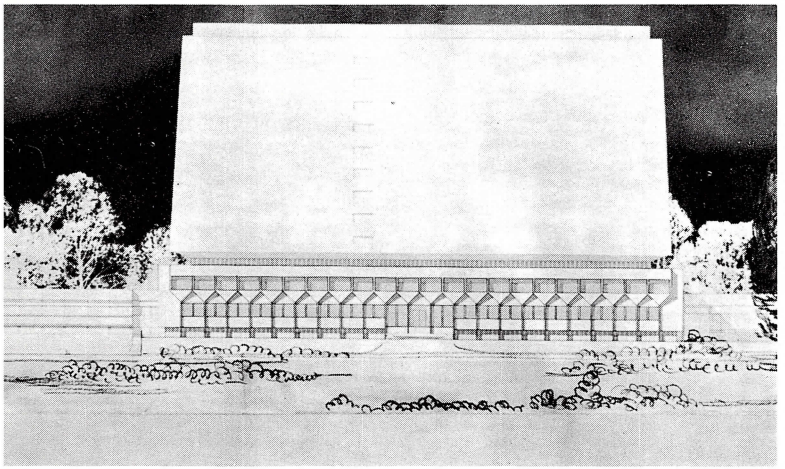


Industrial Designer. Assistant Professor of Product Design. Teaching second year Product Design, Design Graphics and Packaging. B.F.A. With Honors in Industrial Design, Pratt Institute, 1953. Further study at New York University and the University of Cincinnati. Taught Industrial Design at the University of Cincinnati from 1953-1963. Work has been exhibited and awards received from the Cincinnati Art Directors Club, the Columbus Art Directors Club, the American Institute of Graphic Arts, the Mid-West Design Craftsman Exhibit and the Decorative Arts of Kansas Exhibition. Experimental design work on rehabilitation devices for the physically handicapped with the United Cerebral Palsy Company and the Condon School for the Retarded. Editor of the Journal of the Industrial Design Education Association 1960-63.



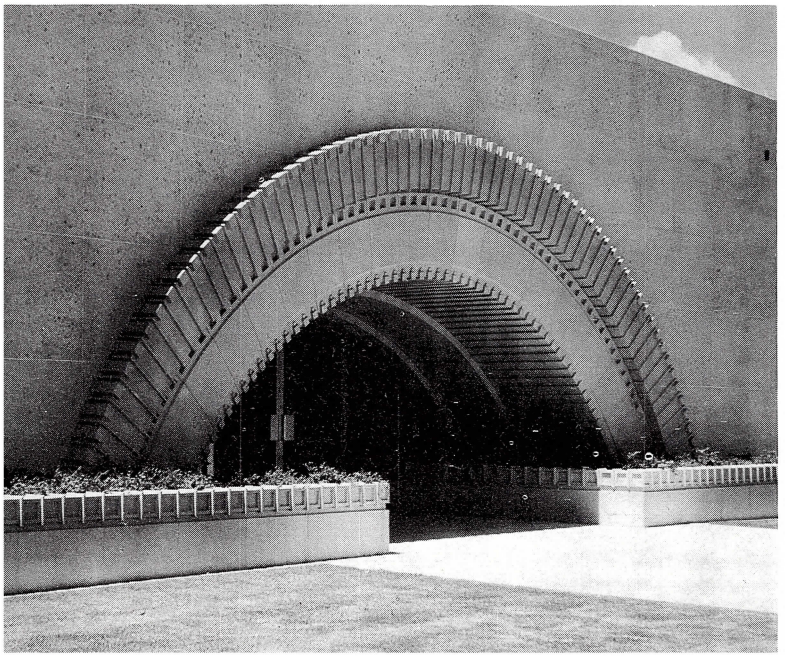
LIGON B. FLYNN

Architect and painter. Instructor in Architecture. Teaching first year Design and Descriptive Drawing. B. Arch. North Carolina State College, 1959. Worked for Geodesics, Inc., Six Associates, Wheatley and Associates. Paintings exhibited in North Carolina Artists Annual.



JERZY E. GLOWCZEWSKI

Architect. Associate Professor of Architecture. Teaching fifth year Architectural Design. Master in Technical Science, Warsaw Polytechnic School of Architecture, 1951. Ford Foundation Travel Grant in U.S.A., 1961. Senior Designer, Bureau for Studies and Typical Projects of Industrial Buildings, Warsaw. Fellow of the Society of Polish Architects. Work published in architectural and cultural magazines of Poland, France, England and West Germany and in *New Architecture of Europe* by G. E. Kidder Smith. Reconstruction of historical monuments in Poland. Apartment houses, factories for textile industries, Warsaw Sports Stadium with J. Hryniewiecki and Leykam. Two first and one second degree national awards for architectural design in Poland.

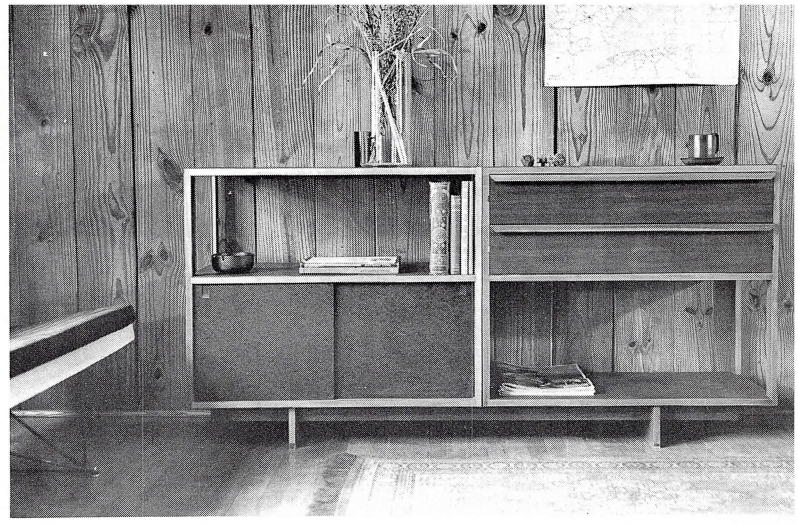


HARWELL HAMILTON HARRIS

Architect. Professor of Architecture. Chairman of Design Instruction. Teaching Architectural Design, History of Design and Technical Drawing. Member of American Institute of Architects and Congres Internationaux d'Architecture Moderne. Collaborator with Richard Neutra, 1929-32. Private practice since 1933. Director, School of Architecture, University of Texas, 1951-55. Visiting Critic: University of Southern California, University of Minnesota, Yale, Columbia. Important contributor to development of California house both as modern and regional expression. Architect of proposed U.S. Embassy, Helsinki, Finland. Work included in: A.I.A.'s selection of 75 significant buildings, 1857-1957; Architectural Record's 50 Most Significant Buildings of Past 100 Years; Museum of Modern Art's 47 buildings, 1932-42, 43 buildings, 1943-53; Encyclopedia Britannica Yearbook; Masters of Modern Architecture, Braziller, Inc. Exhibitions: Museum of Modern Art, New York; National Gallery, Washington; U.S. Office of War Information; American Federation of Arts; Moscow Fair; Paris International Exposition; Triennale Fair, Milan; world fairs at New York and San Francisco; Pan-American Congress of Architects. Honor Awards: Southern California Chapter A.I.A., Texas Society of Architects. Buildings widely published in U.S., England, France, Switzerland, Italy, Germany, Sweden, Japan, Argentina. Articles in *Texas Quarterly, California Arts and Architecture, A.I.A. Journal, House Beautiful, Die Form, Perspecta.* Listed in *Who's Who in America*; Current Biography.

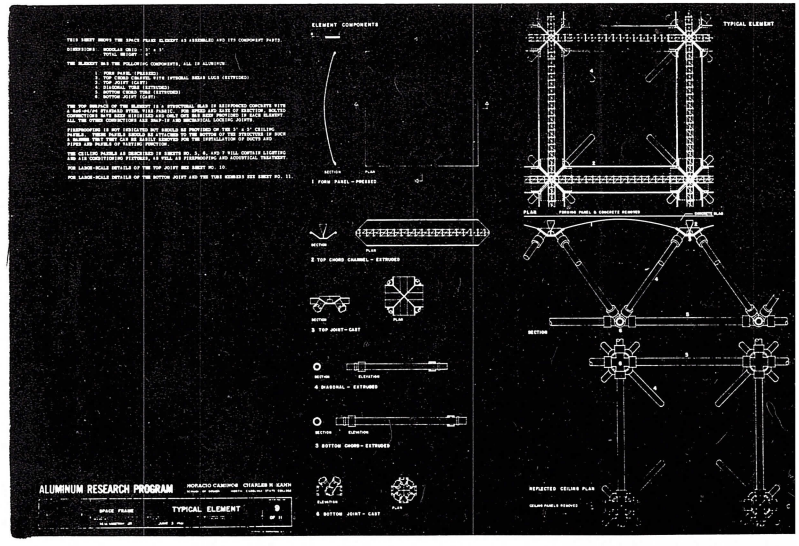
JOHN HERTZMAN

Designer. Assistant Professor of Design, Chairman of Shop Development. Teaching first year Design and Descriptive Drawing. Brown University 1949-50. B. S. in Product Design, Institute of Design (Chicago), 1955. Hans Hofmann School, 1957. Chairman, Product Design Department, Kansas City Art Institute, 1955-58. Work in painting, photography, graphic design and product design. Exhibited at Provincetown, Chicago, Kansas City and Raleigh.



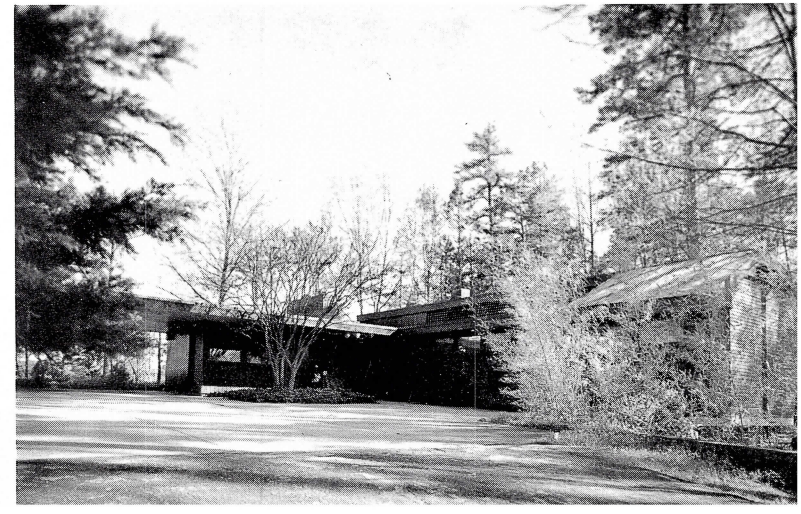
CHARLES HOWARD KAHN

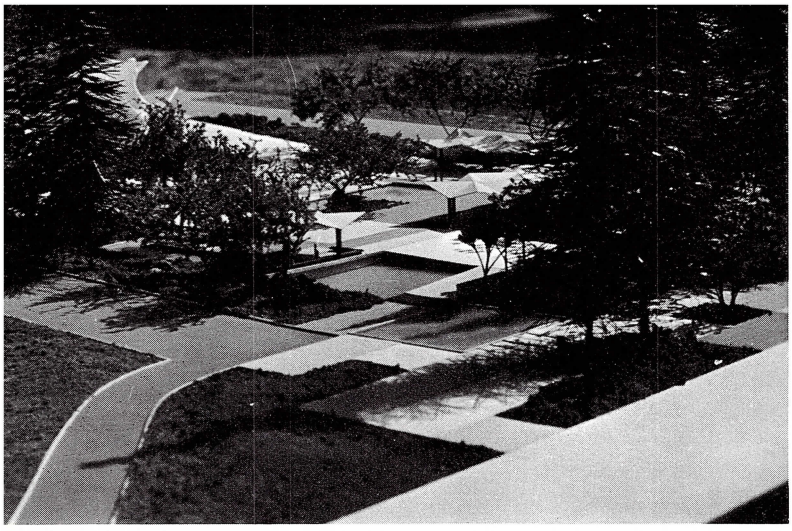
Structural Engineer and Architect. Associate Professor of Architecture. Coordinator of Environmental Factors instruction. Teaching Advanced Structural Design. AB in Mathematics, University of North Carolina, 1946; BCE, North Carolina State College, 1948; MS in Structures, Massachusetts Institute of Technology, 1949; B.S. in Architecture, North Carolina State College, 1956. Registered Architect and Engineer, Member American Institute of Architects, American Society of Civil Engineers, American Concrete Institute, International Association for Shell Structures. Fulbright in Architecture, Italy, 1957-58; Henry Adams Fund Grant, Structural Research in France, 1961; North Carolina AIA Award of Merit, Residence, Co-winner, 1962; National AIA-House and Home, Homes for Better Living, Award of Merit, Residence, Co-winner, 1962. Research in thin shells and space structures, consulting structural engineer.



HENRY L. KAMPHOEFNER

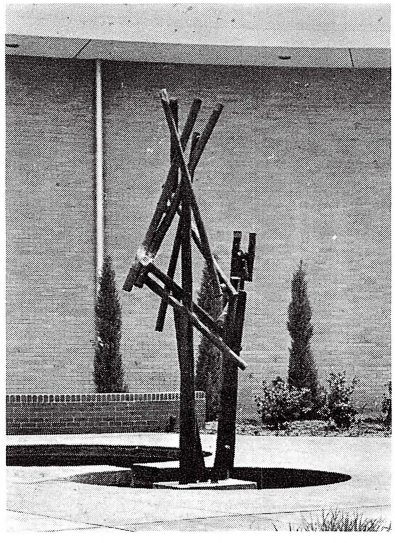
Administrator and Architect. Professor of Architecture and Dean of the School. Teaching Seminar on Ideas in Design. Attended Morningside College. B.S. in Arch., University of Illinois, 1930. M.S. in Arch., Columbia University, 1931. Professor of Architecture at the University of Oklahoma, 1937-48. Professor of Architecture, University of Michigan, summer 1948. Alternate on the 32nd Paris Prize in Architecture, and the 1939 Schermerhorn Fellowship. Winner Edward Langley Scholarship. Private practice in Iowa. Author of many articles in architectural journals and magazines. Co-author of *Cities are Abnormal, Churches and Temples, the South Builds.* Lecturer and Visiting Critic at many American colleges and universities. Fellow of the American Institute of Architects. National President of the Association of Collegiate School of Architecture, 1963-65.





RICHARD A. MOORE

Landscape Architect. Associate Professor of Landscape Architecture and Head of the Department of Landscape Architecture. Teaching Landscape Design. B. S., University of Missouri, 1951. M.L.A., University of Oregon, 1957. Taught at California State Polytechnic College 1957-61. Principal, Environmental Planning Associates, Pomona, California, 1957-61. Landscape Architect, various projects in Washington, Oregon, California, Missouri, and North Carolina. Prize winner, Seattle Civic Center Fountain Competition for the Century 21 Exhibition. Associate American Society of Landscape Architects.



RAYMOND W. MUSSELWHITE, JR.

Sculptor. Assistant Professor of Design. Teaching Sculpture, first year Design, and Descriptive Drawing. Attended University of Maryland, Wilmington College, George Washington University. B.S.Ed., University of Georgia, 1959. Graduate work at the University of Georgia. Assistant Professor of Art, Texas Wesleyan College, summer 1960. Instructor, School of Art, University of Oklahoma 1960-61. Mary Rosenblatte Scholarship, University of Georgia 1957. Art Auction Scholarship, University of Georgia 1957, '58, '59. Work exhibited in Washington, D. C., Athens, Georgia, Atlanta Art Institute, Nye Gallery, Dallas, Texas; Museum of Art, University of Oklahoma; Fitz Gallery, Amarillo, Texas and many others.

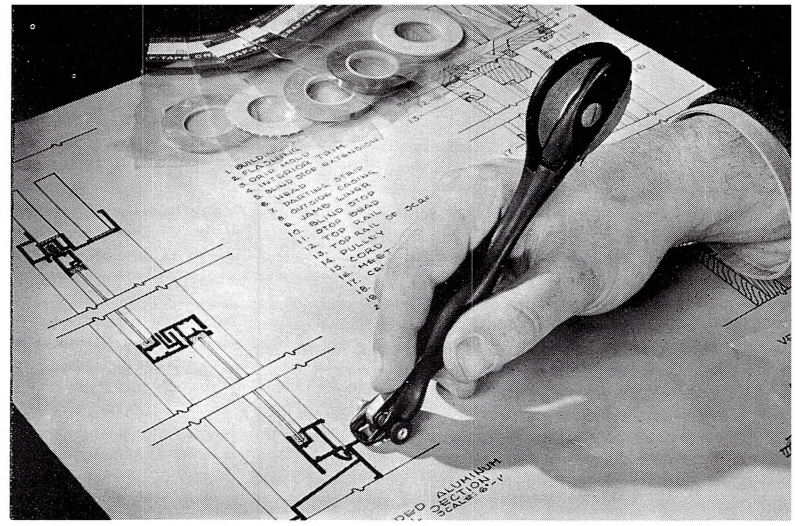


WILLIAM COLVIN NICHOLS

Architect. Instructor in Architecture. Teaching Technical Drawing and Descriptive Drawing. B. Arch., North Carolina State College, 1961. First Prize Edison Electric National Competition, 1960. Gulf Coast Regional A.I.A. Award of Merit for Residential Design as Associate of Caldwell and Harmon, Architects of Birmingham, Alabama.

VICTOR J. PAPANEK

Industrial Designer. Associate Professor of Product Design and Head of the Department of Product Design. Teaching third year Product Design, Product Design Thesis and Design Analysis. Studied at Cooper Union in New York (Industrial Design) and special courses at Massachusetts Institute of Technology, the American Psychological Association and the Institute of General Semantics. Taught Industrial Design at the Art League of California, the Ontario College of Art of the University of Toronto, the State University of New York in Buffalo. Independent design consultant to corporations in California, Canada and New York State. Articles published in professional magazines in Italy, Japan, England, Germany, Canada and this country. Taped 39 television shows on Industrial Design. Professional member of the Industrial Designers Institute, Vice President and National Meeting Chairman of the Industrial Design Education Association.



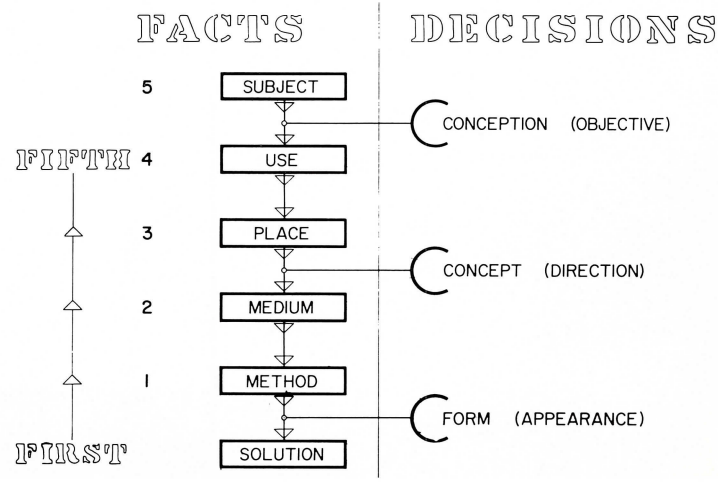
BRIAN SHAWCROFT

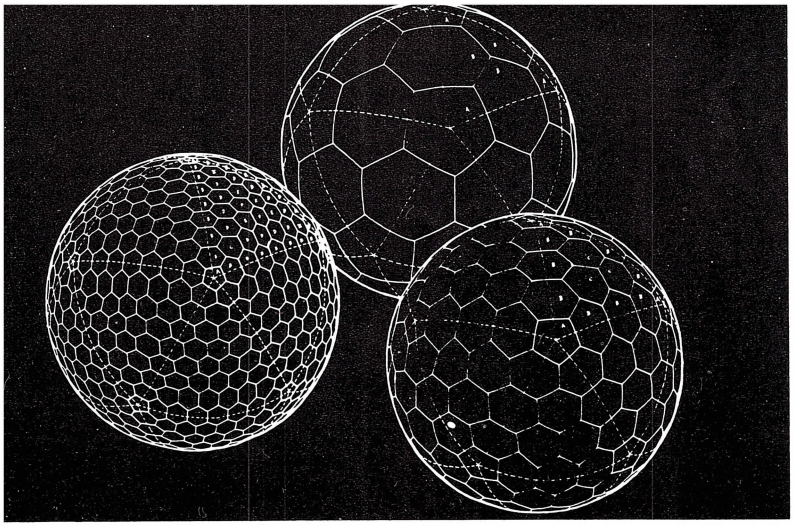
Architect. Assistant Professor of Architecture. Chairman of exhibitions. Teaching Architectural Design and Photography. Southwest Essex Technical College and School of Art, London, 1949-53. M. Arch. Massachusetts Institute of Technology, 1960. Government Scholarship, England, 1949-53. Senior Designer, Page and Steele, Architects of Toronto. Design Critic, Boston Architectural Center. Associate of the Royal Institute of British Architects. Articles and photography published in books and journals of the United States and Canada. North Carolina Chapter, American Institute of Architects Award of Merit, co-winner 1962. National American Institute of Architects House and Home, Life Award of Merit, co-winner, 1962. Member, North Carolina State Capitol Planning Commission, Heritage Square Commission, 1962.



VERNON F. SHOGREN

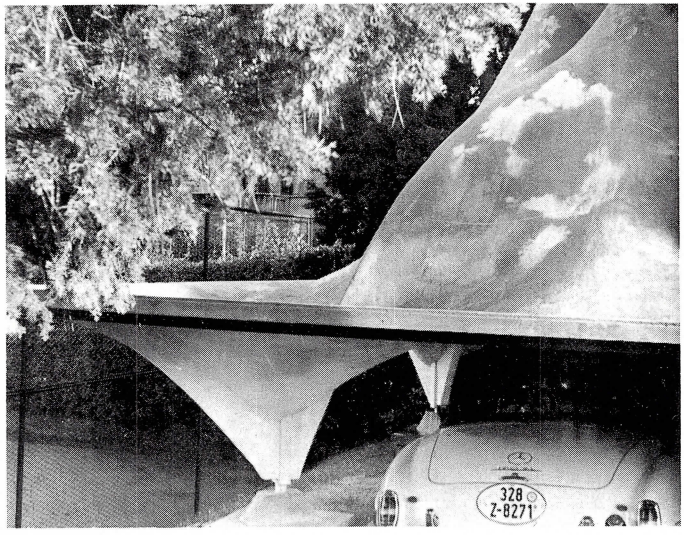
Architect. Assistant Professor of Architecture. Teaching third year Architectural Design, Technical Drawing, and Historic Architecture Research. B.Arch., University of Minnesota, 1950. M.Arch., Massachusetts Institute of Technology, 1952. Technische Hogeschole, Delft, Holland, 1953. Fulbright Scholarship for Urban Housing studies in Delft, Holland. Designer in office of Eero Saarinen and Associates.





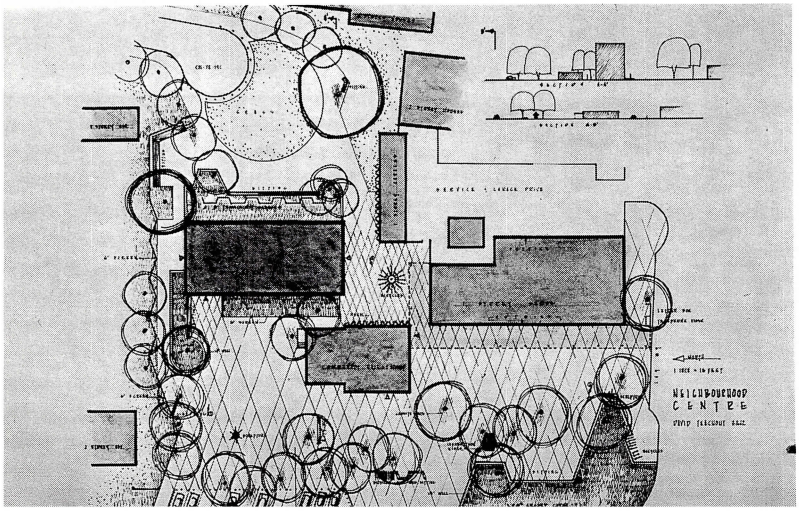
DUNCAN R. STUART

Painter and Designer. Professor of Design. Chairman, Basic Design instruction. Teaching first year Design and Advanced Descriptive Drawing. Studied: University of Oklahoma, Chouinard Art Institute, Yale University (Weir Scholarship). Teaching; Waterbury Art Institute, University of Oklahoma, University of Michigan. Creative work; painting, sculpture, graphic arts, experimental structures, mathematics, Operations Analysis (with United States Air Force). Exhibited paintings and graphics in most major U.S. cities and received numerous awards. Works of art in many public and private collections. Publications primarily in the fields of geometry, graphic problems of designers and various papers on operational problems of the United States Air Force. Research in the field of geometry leading to present preoccupation with film making as primary means of publishing results of research.



WAYNE TAYLOR

Architect. Assistant Professor of Architecture. Teaching Architectural Design and Descriptive Drawing. B. Arch. North Carolina State College, 1958. American Institute of Architects Book Award from North Carolina State College for outstanding student work in design. Fellow in Architecture at the American Academy in Rome 1960-62.

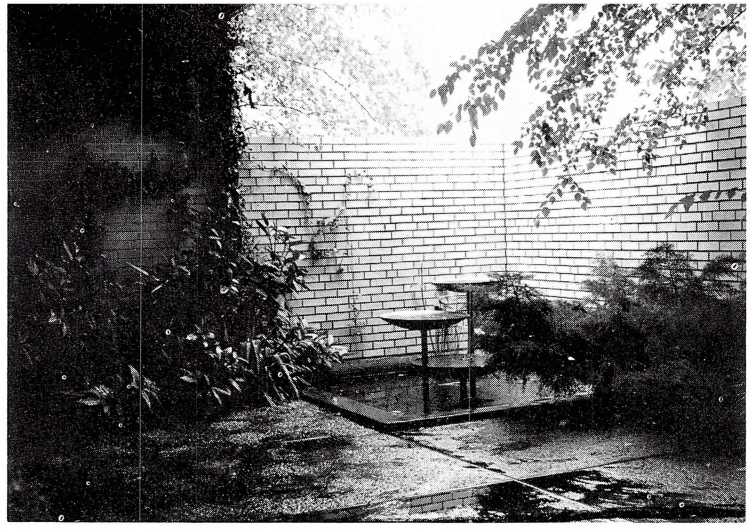


DAVID D. TEACHOUT

Landscape Architect. Instructor in Landscape Architecture. Teaching Landscape Design, Landscape Technology, and Technical Drawing. Occidental College, 1951-53, 1957-59; California State Polytechnic College, 1959-61. Bachelor of Landscape Architecture, North Carolina State College, 1963. First place and honorable mention in two landscape architecture exchange problems in California, 1961. Fifth prize winner, Oklahoma City Tivoli Gardens Competition, 1963.

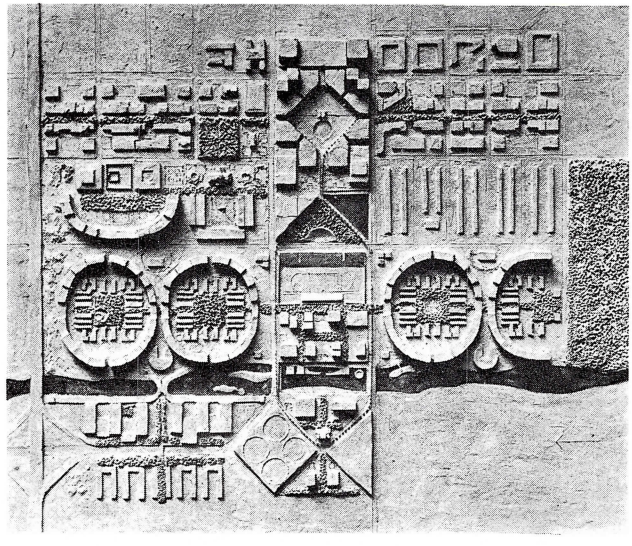
EDWIN G. THURLOW

Landscape Architect. Professor of Landscape Architecture. Chairman of Technical Drawing instruction. Teaching Landscape Design, Landscape Technology, and Technical Drawing. Purdue University 1928-29; B. S. in Landscape Architecture, North Carolina State College 1932; M.L.A. Harvard University 1936. Charles Eliot Traveling Fellow in Landscape Architecture 1937. Landscape Architect, Maine State Planning Board, National Park Service, U. S. Forest Service. Land Planning Consultant, Federal Housing Administration. Head, Department of Landscape Architecture 1947-50. Member and former Trustee of the American Society of Landscape Architects. Work published in *Progressive Architecture, Architectural Forum, Architectural Record, Landscape Architecture,* and *Time Saver Standards.* Award of Merit for Landscape Design, Southeastern Region, American Institute of Architects, 1956. Merit Award, House and Home Outdoor Living Competition, 1962.



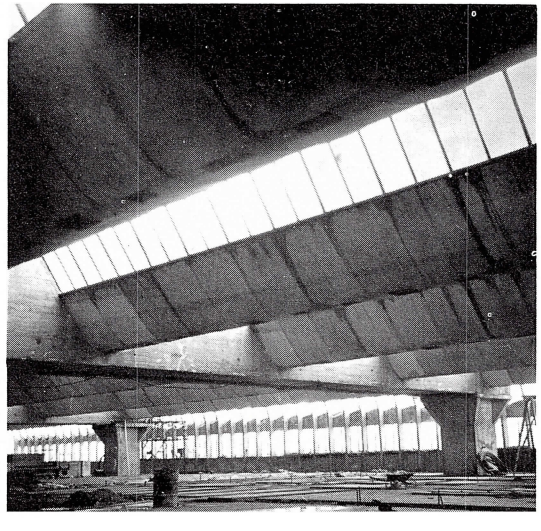
RICHARD SAUL WURMAN

Architect. Assistant Professor of Architecture. Teaching first and second year Design and advisor to the Student Publication. B. Arch., University of Pennsylvania, 1959. M. Arch., University of Pennsylvania, 1959. As a student received two Chandler Fellowships, two Warner Prizes, the Brookes Gold Medal, A.I.A. Annual Award and the Pennsylvania Society of Architecture Annual Award, Tau Sigma Delta, Oakley Medal and five First Awards for Painting and Graphics. Member of the expedition to Tikal, Guatemala in 1958. Authored: *Notebooks and Drawings of Louis I. Kahn* and with students of School of Design *The City—Form and Intent.* Worked for Louis I. Kahn in Philadelphia and London, 1960-62. Presently member of the firm Murphy Levy Wurman in Philadelphia.



ZENON A. ZIELINSKI

Structural Engineer. Associate Professor of Architecture. Teaching fifth year Structures. M.S. in Civil Engineering, 1950, and Doctor of Technical Science, 1957, Warsaw Technical University, Poland. Assistantship since 1949 and later teaching Prestressed Concrete Structures at Warsaw University. Since 1950 Chief Designer of precast and prestressed structures in Research and Typical Industrial Buildings Design Office, Warsaw. Study and professional visits to European and North African countries. Attendance in International Conferences (Federation Internationale de la Precontrainte, Berlin 1958, Rome-Naples 1962). Postdoctoral visiting scholar to the United States (Universities of Illinois and California) on Department of State Grant, 1962-63. Author of many structures and standard precast elements, also important number of publications (Book: *Prefabrykowane Betonowe Dzwigary Sprezone,* Arkady, Warsaw 1957-62). Winner of prizes for best projects of year, winner of several design competitions.





Design Foundation

THE NORTH CAROLINA STATE COLLEGE ARCHITECTURAL FOUNDATION was organized at a meeting of the North Carolina Chapter of the American Institute of Architects in the summer of 1948. The Foundation was organized for the purpose of supplementing State salary funds for the faculty of the School of Design. More than half of the architectural firms of the State have now made contributions. Since 1948 increasing amounts have been placed in the hands of the administration of the school for selected supplements to the salaries of several members of the faculty. Money from this Foundation has also been used in special cases for travel where State funds would not have been available for the purpose. Early in the spring of 1959, the name of the Architectural Foundation was changed to DESIGN FOUNDATION, since the new name was considered by the Foundation directors as more descriptive of the purpose and philosophy of the profession in promoting the best in design for all related endeavors within the School of Design at North Carolina State. Appropriately, the scope of Foundation activities has been enlarged in the school to create a more meaningful liaison between it and professional activity and industry. This program can be implemented by donations of equipment and materials, as well as by monetary subscription. The procurement and encouragement of outstanding faculty members can be materially aided by annual contributions to the Foundation by persons interested in the School and its work. Inquiries with regard to the Foundation may be made by writing to the secretary of the Foundation in care of the College.

Advisory Committee

LUTHER S. LASHMIT, A.I.A., President, North Carolina Design Foundation.
ARTHUR C. JENKINS, JR., A.I.A., President, North Carolina Chapter, American Institute of Architects.
JOHN ERWIN RAMSAY, A.I.A., President, North Carolina Board of Architecture.
ROBERT G. CAMPBELL, A.S.L.A., Chairman, North Carolina Section, S.E. Chapter, American Society of Landscape Architects.
WALTER P. BAERMANN, A.S.I.D., President, Furniture Design Association.
ALBERT B. CAMERON, A.I.A., Charlotte Architect.
THOMAS T. HAYES, JR., A.I.A., Southern Pines Architect.

Part-Time Faculty

LOUISE HALL, Adjunct Professor of Architecture. B.A. Wellesley College, 1927; B.S. in Arch., Massachusetts Institute of Technology, 1930; Ph.D. in Arch., Harvard University, 1954. Teaching History of Design.
JAMES BRADFORD WIGGINS, Instructor in Architecture. B.Arch., North Carolina State College, 1956. Teaching Technical Drawing.
DOROTHY J. WURMAN, Instructor in Architecture. B.Arch., University of Pennsylvania, 1958. Teaching First Year Design.

Secretarial Staff

ELIZABETH YOUNG, Administrative Assistant to the Dean. Diploma in Commercial Education, Saint Mary's Junior College.
ANNE CRADDOCK, Secretary and Recorder. Attended Memphis State College. Diploma from West Tennessee Business College.
WINIFRED HODGE, Secretary. Diploma in Commercial Education, Dunsmore Business College, Staunton, Virginia.
ELIZABETH PIPPIN, Secretary and Receptionist. Diploma in Commercial Education, Peace College.

Library

HARRYE LYONS, B.A., University of Iowa. M.A., University of Denver—Librarian.
HELEN ZSCHAU, B.A., Shorter College—Assistant.
MODINE EXUM, Attended Baylor University—Assistant.

Shop

HUBERT M. CHAMPION, SR.—Shop Supervisor

Visiting Lecturers

GUESTS OF THE SCHOOL OF DESIGN
WHO HAVE PRESENTED LECTURES AND SEMINARS SINCE 1948

THOMAS CHURCH	San Francisco, landscape architect.
WILLIAM W. CAUDILL	Texas architect.
EERO SAARINEN	Architect from Bloomfield Hills, Michigan.
ALONZO HARRIMAN	Architect and school planning specialist from Auburn, Maine.
R. BUCKMINSTER FULLER	Noted American inventor; engineer, and designer.
CLARENCE STEIN	One of America's foremost authorities on planning and housing.
ERIC MENDELSOHN	San Francisco architect and designer of the Einstein Tower in Berlin.
FRED SEVERUD	One of the nation's leading structural engineers.
LEWIS MUMFORD	American author and critic in the fields of planning and the arts.
FRANK LLOYD WRIGHT	World famous American architect.
NAUM GABO	Noted constructivist sculptor of Woodbury, Connecticut.
JOSEPH HUDNUT	Former Dean of the Harvard Graduate School of Design.
JOHN LYON REID	San Francisco architect and school planning specialist.
DOUGLAS HASKELL	Writer, critic, and Editor of the Architectural Forum.
CHLOETHIEL SMITH	Washington, D. C., architect.
CHRISTOPHER TUNNARD	City planner and Associate Professor at Yale University.
ALDEN B. DOW	American architect, famous for his Midland, Michigan houses.
LUDWIG MIES VAN DER ROHE	Internationally known architect.
PIETRO BELLUSCHI	Dean of the School of Architecture and Planning, M.I.T.
FELIX J. SAMUELY	Famous English engineer known for his work with the space truss.
WILLEM DUDOK	Dutch architect.
HIDEO SASAKI	Landscape Architect and member of the faculty of Harvard University.
ALEXANDER ARCHIPENKO	World famous sculptor.
WALTER GROPIUS	World famous architect.
RICHARD KELLY	Nationally known authority on architectural lighting.
GEORGE NELSON	Widely known architect and furniture designer.
ROBERT ROYSTON	California landscape architect.
GEORGE BOAS	Philosopher and aesthetician.
CHARLES EAMES	Architect and furniture designer.
LAWRENCE HALPRIN	California landscape architect and teacher.
ROBERT B. NEWMAN	Massachusetts Institute of Technology acoustical engineer.
BRIAN HACKETT	British landscape architect and teacher.
MARCEL BREUER	World famous architect and designer
ROBERTO BURLE MARX	Brazilian landscape architect.
PAUL WEIDLINGER	New York structural engineer.
PIER LUIGI NERVI	World-famous structural engineer.
MARIO G. SALVADORI	New York structural engineer, Professor at Columbia University.
GARRETT ECKBO	California landscape architect and teacher.
DOUGLAS BAYLIS	California landscape architect.
JOSE DE RIVERA	New York sculptor.
EDUARDO TORROJA	World-famous structural engineer from Madrid.
JOHN E. ARNOLD	Engineer famous for development of courses in creative engineering.
ARTHUR BERGER	Southwestern landscape architect.
DAN KILEY	New England landscape architect.
GIULIO PIZZETTI	Italian structural engineer.
GUIDO OBERTI	Italian structural engineer.
A. M. HAAS	Dutch structural engineer.
PETER SHEPHEARD	British architect and landscape architect.
SIR HERBERT READ	British author and critic.
ADOLPH D.A. REINHARDT	New York painter.
RAPHAEL S. SORIANO	California architect.
O'NEIL FORD	Texas architect.
ALBERT BUSH-BROWN	Author, historian, President, Rhode Island School of Design
WALTER A. NETSCH, JR.	Chicago architect
H. TH. WIJDEVELD	Dutch architect.
LOUIS I. KAHN	World famous architect
CLEMENT GREENBERG	New York writer and critic.
ERNEST J. KUMP	California architect.
HEINZ VON FOERSTER	Research cyberneticist and bionicist.
SHEILA HAYWOOD	British landscape architect
HENRY J. COWAN	Australian structural engineer.
G. E. KIDDER SMITH	New York architect and photographer.