The School of Architecture offers a program of professional studies which prepares its graduates for the practice of architecture. While emphasizing knowledge and skills required by architects in guiding the processes of building, the school is especially concerned that its students learn that kind of good judgment which particularly distinguishes the architect from all other professionals who serve the building industry. Therefore, the student is regularly called upon to pay attention to cultural, philosophical and ethical issues that appropriately concern the architect in performance of the art of building. The student is also required to discover and understand the principles by which our physical universe appears to operate in order to know the science of building as fully as possible. It is important for the student to learn the characteristics of the natural environment while learning the physical behavior of materials in structures. Furthermore, the program of the school is concerned with preparing the student to be adaptable to change. An understanding of society is important as we see it developing in sometimes surprising ways. This places special demands upon the architect. Consequently the program of the School emphasizes the process of learning with the intent of enabling its graduates to adapt to the changing circumstances of our world. How to learn about architecture is as important a matter for the student as learning itself.

Facilities

In the spring of 1981, a new building housing the School of Architecture and shared by the Art Department was completed. The Art and Architecture Building contains all the primary activities of the school. Expressly designed for the school in an open architectural competition, the building has received widespread recognition and has become one of the models sought out by other schools.

The building was designed by the Knoxville architectural firm of McCarty, Bullock, Holsapple, Inc. It contains as its major feature a large interior mall or street. Opening off this large gathering space, which serves as a campus focal point, are amply designed classrooms, a reference library which contains extensive slide collections and other reference materials, computer rooms, faculty offices, lecture rooms, administrative offices, an elaborate darkroom, workshop, and a gallery in which architecture as well as art exhibits are mounted.

The principal library holdings of the school are located in the James D. Hoskins Library, with additional volumes in the Undergraduate Library. A reading and reference room is maintained in the Art and Architecture Building.

Financial Assistance for Students

A number of scholarships are made available each year through the Architecture Endowment Fund, the Annual Fund and the Tennessee Architecture Foundation. Other scholarships have been funded by the Masonry Institute of Tennessee, the General Shale Corporation and other architectural firms, manufacturers of building materials, and other construction related industries. Scholarships are also available through the national headquarters of the American Institute of Architects. Honor students in all the upper four years are eligible for this aid, but it is primarily awarded to student's of third- and fourth-year standing.

Lecture Program

Throughout the academic year, the school organizes an extensive series of special lectures by experts in architecture and related subjects. Students are expected to attend regularly and benefit from this opportunity to hear the leading people of the field. The lectures are open to the University community and the public as well.

Included in the series is the ROBERT B. CHURCH MEMORIAL LECTURESHIP. Named for the school's second dean, it has become widely respected in the field as an honor to be appointed to this lectureship. The most prominent architects from around the world are brought to the school with income from the endowment.

Other important lectures are sponsored by the General Shale Corporation, the Masonry Institute, the Architecture Annual Fund. Annually in the spring quarter a special program called TAAS is 'The Annual Architecture Spring Thing' is arranged. Within a period of one week the entire school participates in special lectures, seminars, exhibits, and informal gatherings. Featured are discussions by a series of visiting experts. TAAS is an event organized by students.

Publications

Students in the school each year publish The University of Tennessee Journal of Architecture. Continuing several years of excellent publications covering work of the school and current thinking in the field, this journal has become a widely recognized part of the school's participation in the profession.

Foreign Studies Program

Each year the school offers at least two opportunities for foreign study to its students. In cooperation with the Danish International Student Committee a program is regularly offered in Copenhagen taught by outstanding Danish architects and educators. Exchange programs are established with the Royal Melbourne Institute of Architecture, Melbourne, Australia and Chongquing Institute of Architecture and Engineering, Chongquing, Sichuan Province, China.

Within the school faculty, a person is assigned responsibility to lead a program in Europe each year at varied locations. These are designed to include visits to prominent new architectural sites and major historic locations. Most recently for two years the school has offered a program in Yugoslavia in which students and faculty from the Universities of Belgrade and Zagreb join students and faculty from Tennessee in study.
Studies abroad, which are arranged to include a full quarter’s credit for advanced students, include design, history and theory of architecture, and directed independent study.

Memphis and Knoxville Community Design Centers
Each year, throughout the year, advanced students may be given opportunity to work at locations off-campus enrolling in a course; Arch. 4445 Design Service in Communities, or Arch. 4400 Special Design Studies. These programs enable students to gain first-hand experience and work alongside outstanding professional architects while dealing with actual community based projects. Students may enroll in additional courses at off-campus locations to complete a full quarter’s program of study in keeping with curriculum requirements. During 1988 - 1989 the school will participate in a major way in Knoxville’s “Mainstreet” program funded by the National Trust for Historic Preservation, the U.S. Department of Housing and Urban Development and the City of Knoxville.

General Information
Students are advised to consult the University’s general requirements as stated in the front section of this catalog as well as the requirements described in the School of Architecture’s Student Handbook.

Self advising will not be permitted in the School of Architecture. Students must plan their schedule by consulting with an assigned advisor. Electives will be chosen with the concurrence of the advisor and with full consideration of the necessary prerequisites.

Freshman Association Requirements
The School of Architecture, being a professional program and having limited resources, has a restricted enrollment based on the following criteria:

(1) Accept applicants with an ACT composite score of 27 (SAT 1100) or above.
(2) Accept applicants with a total of 55 or above using the formula of the high school grade point average times 10 plus the ACT composite score. A minimum ACT composite score of 20 (SAT 840) is required.
(3) Refuse all applicants with an ACT score of 16 (SAT 720) or below.
(4) Refer applicants not falling into items 1, 2, or 3 to the Committee on Admissions. The committee meets during the second week of March.

Deadlines for Applications
Deadlines for application to the School of Architecture coincide with those set forth by the University of Tennessee. All applications must be received by August 1 for fall quarter admission, and no later than three weeks before the start of classes for admission to any other quarter. It should be noted that due to the strong sequential character of the curriculum and certain pre-requisite requirements that entry in any quarter other than Fall may be difficult.

Requirements for Progression to Second-Year Architecture
(1) Satisfactory completion of first-year architectural program with grade point average at least 2.3; exceptions may be made by petition only;
(2) Application to the School of Architecture no later than June 15 preceding the start of the second year.
Students must maintain an overall 2.3 grade point average by the end of 51 hours (attempted) in order to maintain “full status” in the program. Delinquent students must be put on “temporary status” for one quarter. These students will have one quarter to raise the overall GPA to 2.3 or have minimum 2.3 on each quarter’s work until overall average is raised to 2.3. If the GPA is not brought up to 2.3, the student will be dropped from the architecture program.

Third-Year Prerequisites
Students are required to have all first- and second-year courses satisfactorily completed before entering the third-year design courses, Architecture 3100-3200-3300. Students progress and design work in second year will be reviewed by a committee of the faculty determining their readiness for advancement to third year. Students who register for a third-year design course holding first- or second-year deficiencies may be required to drop the course at any point during the quarter.

Progression to 4000-level Courses
Architecture students must have attained third-year standing in the school before being admitted to any 4000-level course, with the exception of Architecture 4000 Service Practicum. Students must complete all requirements of the curriculum through the third year before entering 4100.

Minor
An undergraduate minor in architecture is offered in order to enable students in other colleges to pursue studies in architecture which are relevant to their major areas of concentration. The minor will consist of not less than 10 hours from two lists of courses. Students interested in obtaining a minor in architecture must obtain the consent of the School of Architecture Academic Standards Committee and Dean of the School of Architecture, who will approve specific programs of study proposed by students.

Course Load
The average course load in any quarter is 16 credit hours. The minimum which may be taken by full-time students is 12 hours; the maximum which may be taken without approval of the Dean is 19 hours.

Satisfactory/No Credit Courses
These courses, if successfully completed, will count as hours for graduation, although neither S nor NC grades will be calculated in the student’s grade point average. Satisfactory is defined as C or better work on the traditional grading scale, and no credit is defined as less than C. The following regulations apply:
(1) S/NC courses may not count for required courses or architecture electives;
(2) a student who desires to take a course S/NC should indicate this intention at the start of registration. A change from S/NC grading to regular grading or from regular grading to S/NC will not be permitted beyond the add deadline for each quarter. Students who register for an architecture elective or required course with S/NC grading indicated will be required to change to regular grading.

Program Description
The curriculum for the Bachelor of Architecture degree includes a combination of required and elective courses which offer the student both a solid professional program of study and a sound general education. While the majority of the courses are designated as required, students may use the available architecture electives to expand their knowledge in areas of special interest. Academic Records for Architecture electives allow students to broaden their education in areas of general interest: the humanities, natural sciences, social sciences or arts. All electives are to be taken only with the approval of the student’s advisor.

Curricula for Architecture
All students studying for a Bachelor of Architecture degree will include the following requirements in their course of study. Students are not allowed to enroll simultaneously in two design courses. For any additional specialized requirements, the student should refer to the Student Handbook of the School of Architecture and the student’s advisor.

Service Practicum Requirement
A three-month, non-credit internship in an architect’s office is required. Upon petition, work in an engineer’s, or contractor’s office or related work may be approved by the school. This work must be evidenced by a letter from the employer indicating the type and quality of student’s work and time of employment prior to the fifth year. (See course description for Architecture 4000.)

Foreign students may need to obtain Immigration and Naturalization Service Employment Authorization before service practicum begins. To obtain authorization, foreign students should take their I-94 form to the Office of International Student Affairs not more than 60 days nor less than 30 days before the anticipated starting dates. Beginning service practicum employment without INS authorization constitutes unauthorized employment and may jeopardize a foreign student’s continued stay in the United States.
To be admitted to the third year the student must submit work for review by a designated committee of faculty of the school. A GPA of 3.0 in Architecture 1190, 1290, 1390, 3100, 3200, 3300 is required along with an overall 2.5 GPA.

Approved Electives List

<table>
<thead>
<tr>
<th>Approved Electives</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>First &amp; Second Year Students</td>
<td>English 2560-70-80, 2640-50; Philosophy 1710, 2516; History 2020; Classics 3340; Foreign Language; Interior Design 2000.</td>
</tr>
<tr>
<td>Third Year Students</td>
<td>Architecture 3114, 3214, 3314, 3401, 3501, 3601, 3701; Architecture 3116, 3216, 3316; Architecture 3117, 3217, 3317.</td>
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<tr>
<td>All Year Students</td>
<td>Architecture 4100, 4200, 4300, 4400, 4500, 4600, 4700, 4800; Architecture 4101, 4201, 4301, 4401, 4501, 4601, 4701, 4801.</td>
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</tbody>
</table>

| Fourth Year Students | Architecture 4101, 4201, 4301, 4401, 4501. |
| Fifth Year Students | Architecture 4501. |
| Course Descriptions | Architecture electives. |
| Advanced Electives | Approved Electives. |

Total: 245 hours

Bachelor of Architecture as a Second Degree

A curriculum leading to a Bachelor of Architecture degree is available to students who already hold a bachelor's degree in an advanced degree in another field. This program begins with intensive initial studies in architecture and is possible to complete within three years. A minimum of 9 quarters residency is required. The degree is the first professional degree recognized for purposes of eventual qualification for the license to practice architecture.

Applicants must provide a transcript of previous academic work and must have attained at least a 2.5 overall grade point average. Appropriate goals and abilities must be shown by the applicant as well.

Second Degree students are required to submit a portfolio which demonstrates a proficiency in freehand and orthographic drawing skills prior to taking 1190 Basic Architecture I. If an otherwise qualified student does not have these skills, he or she can come to the School of Architecture the summer before entering the Second Degree Program and take an intensive drawing course which will fulfill the prerequisite.

SECOND DEGREE PROGRAM MINIMUM REQUIREMENTS

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
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<tr>
<td>First Year</td>
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<tr>
<td>Architecture 1190, 1290, 1390</td>
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<tr>
<td>Architecture 1191, 1291, 1391</td>
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<td>Architecture 2200, 2307, 3107</td>
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<td>Architecture 2114, 2214, 2314</td>
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<tr>
<td>Second Year</td>
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<tr>
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<tr>
<td>Architecture 3116, 3216, 3315</td>
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<tr>
<td>Architecture 3127</td>
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<td>Architecture electives</td>
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<tr>
<td>Third Year</td>
<td></td>
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<tr>
<td>Architecture 4200, 4300, 4500, 4600</td>
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<tr>
<td>Architecture 4101, 4301, 4501, 4601</td>
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<tr>
<td>Architecture 4116</td>
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<td>4</td>
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<tr>
<td>Architecture electives</td>
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<tr>
<td>Architecture 4213, 4313</td>
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<tr>
<td>Architecture electives</td>
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</tr>
<tr>
<td>Total</td>
<td></td>
<td>143</td>
</tr>
</tbody>
</table>

*Students are not allowed to enroll simultaneously in two of these design courses.

190 Second Degree Program: Basic Architecture I (6) Principles of architectural design, drawing, and practice, basic visual design. Studio exercises. Coreq: Coreq: 1191 F.

191 Second Degree Program: Architecture Seminar (2) Theory and practice of architecture. Orientation to the profession and program of the school. Coreq: Coreq: 1190 F.

1200 Architectural Graphics (4) Descriptive geometry and constructed architectural drawings: plan, section, elevation, isometric, axonometric, and perspective. Conventional architectural drawing symbols. Emphasis will be on basic discipline required for the development of architectural ideas. Introduction to computer graphics. Prereq: 1100 and 1101 W.

1201 Visual Design Principles (2) Basis of visual order: proportion, scale, balance, figure-ground relationships, site, and rhythm. Light, shadow, and color. Creative abstract exercises and sketches to focus on basic architectural principles. Prereq: 1100 and 1101 W.

1290 Second Degree Program: Basic Architecture II (6) Principles of site development and basic approaches to planning and design of buildings in relation to function and context. Prereq: 1190 and 1191; coreq: 1219 W.

1291 Second Degree Program: Architecture Seminar (2) Design and analysis of space in buildings. Techniques and methods used to develop structural, spatial, and visual characteristics. Coreq: Coreq: 1290 W.


1301 Structural Types (2) Basic structural types and approaches to construction and assembly of buildings: post and lintel, frames, slabs, stressed skin, geodetic frames, shells. Introduction to concepts of compression, tension, and bending moment. Properties of basic building materials. Prereq: 1200 and 1201 S.


2100 Fundamentals of Site Design (4) Projects involving site orientation, climate, energy conservation, access, topography, grading and drainage. Prereq: 1300 and 1301; coreq: 2101 F.

2101 Design in the Environment (2) Introduction to design issues in the natural environment and in urban contexts. Review of exemplary approaches in current practice. Prereq: 1300 and 1301; coreq: 2100 F.

2104 Computer Applications in Architecture (4) Demonstration of computer use in architecture, including exercises in programming. F.

2200 Elements of Architecture (4) Design of small buildings with special consideration for site, internal circulation patterns, space allocation, and structural concepts. Prereq: 1290 and 1291; sketch models. Prereq: 2100 and 2101; coreq: 2201 W.

2201 Building Use (2) Introduction to techniques of building programming. Space allocation and balance. Prereq: 1290 and 1291; coreq: 2201 W.

2207 Architectural History (3) Development of architectural theory from antiquity through the Byzantine period, with consideration for historical and cultural form and types of settlements. E.


2300 Order and Form in Building (4) Design of small buildings answering site and functional requirements. Emphasis on exploration of formal possibilities and structural implications in relation to program use. Presentation sketches, constructed drawings, and finished models. Prereq: 1290 and 2201; coreq: 2301 S.

2301 Models of Building Form (2) Skeletal buildings illustrating imaginative manipulation of form in

Course Descriptions/School of Architecture
response to spatial and structural requirements. Prereq: 2200 and 2201; coreq: 3300. S.

2307 Architectural History II (3) Development of west- ern architecture from a medieval period through the Baroque. Prereq: 2207. E.


3100 Architectural Design I: Review (6) Two or more building projects creatively encourage the architectural -al principles covered in first and second year courses. Concept diagrams, constructed drawings, and models for presentation of design solutions. Prereq: 2200 and 2301. F.

3107 Architectural History III (3) Study of the modern movement from its roots in Romanticism, Neo-Classicism, and the Industrial Revolution through the work of modern movement masters, with applications to current design issues. Prereq: 2307. E.

3114 Structures in Wood and Steel (4) Introduction to analysis and design of simple steel and wood struc- tures based upon specific loading requirements. Use of construction handbooks and design tables. Prereq: 2200. S.

3116 Environmental Control (4) Human physiological response to heat, light, and sound in buildings. Study of climatological factors which affect buildings; intro- duction to heating, ventilating, and air conditioning. F.

3200 Architectural Design II: Concepts (6) Building concepts formulated through analysis, development, and presentation of designs for buildings of moderate complexity. Preliminary structure, material- s choice, and program requirements for the design of a structure. Prereq: 3114. W.


3216 Mechanical Systems in Architecture (4) Con- tinuation of the study of heating, ventilating, and air conditioning systems, including both passive and active systems. Design of energy systems: heating and fire protection systems. Prereq: 3116. W.

3217 Materials and Processes of Construction (4) Architectural materials and their use in building construct- ion. W.

3300 Architectural Design III: Details (6) Design concepts formulated through presentation of detailed designs for alternative structural and environmental systems. Full scale detail studies. Drawings and models showing structure, details, and their relation to overall building design. Prereq: 3200; coreq: 3317. S.


3317 Structural and Mechanical Applications (4) Anal- ysis and selection of structural and mechanical systems for a specific case study to integrate technical infor- mation into a unified design solution. Prereq: 3214 and 3216; coreq: 3300. S.

4000 Service Practicum (0) A non-credit internship for minimum of 3 months duration to be completed prior to fifth year. E.


4101 Community Form (3) Patterns of community devel- opment. History and contemporary examples. Examination of basic urban design issues and exemplary design approaches through lectures, readings, essays, and sketch studies. F.

4116 Acoustics, Communication and Transporta- tion in Buildings (3) 3114 Professional Practice I (3) Principles and methods of economics and management for architectural offices: project production, cost analysis, budgeting, office and construction management. F, W, S.

4200 Advanced Architectural Design II (6) Resolution of a functionally complex program. Concept formulat- ion in the design of large-scale buildings. Growth, flexibility, and energy conservation as issues. Prereq: 4116. W.

4213 Professional Practice II (3) Legal responsibili- ties of architects: contract documents, contract administra- tion, codes and zoning regulations, liabil- ity, and insurance. Prereq: 4213 F, W, S.

4300 Advanced Architectural Design III (6) Design of prototypical mixed-use projects in a complex setting. Emphasis on movement systems, economic paramet- ers, and constraints. Course sections may be housed in off-campus locations. Prereq: 4200. S.

4313 Professional Practice III (3) Legal responsibili- ties of architects: contract documents, contract administra- tion, codes and zoning regulations, liabil- ity, and insurance. Prereq: 4213 F, W, S.

4400 Special Design Studies (6) Faculty initiated studies and projects which are approved by the Dean and are repeated. Maximum credit 12 hours. E.

4410 Foreign Studies (6) Research and design projects conducted in various locations abroad. F, SU.

4415 Urban Design (6) Appropriate community form and urban design frameworks responding to specific community conditions and aspirations. Off-campus locations.

4420 Architectural Design Innovation (6) Design projects emphasizing investigation of experimental approach- es to architectural design. Consideration of new building types, innovative design concepts or alternative design methods.

4430 Architecture and Preservation (6) Rehabilitation, restoration, and adaptive uses of existing buildings.

4440 Development and Design (6) Design conse- quences of feasibility studies, economics, finance, marketability, environmental impact, and social con- siderations of development in real property.

4445 Design Service in Communities (6) Studies conducted under direction of architect or expert in an allied profession. Professional experience in an organization or agencies of government, and public groups. Off-campus locations. Not a Design Course elective.

4450 Working Drawings (6) Preparation of detailed working drawings. Study of selected historical and contemporary documents for typical architectural projects. Not a Design Course elective.


4480 Structural Innovations (6) Building design with innovative structural configuration and technology. May be repeated. Maximum credit 12 hours.

4481 Architecture-Engineering Laboratory (6) Architect- ural projects with emphasis on engineering systems. Directed research applications of new structural con- cepts. Not a Design Course elective.


4501 Architectural Programming (3) Emphasis is placed on learning to ask essential questions and to identify critical basic issues in design. Examination of infor- mation sources and their proper use. Formulation of project objectives and requirements. Verbal, written, and diagrammatic presentation illustrating a basic design approach, concept, and method. Preparation for 4600. This course may be taken the quarter immediately preced- ing 4600 Comprehensive Architectural Design Project. W.

4600 Comprehensive Architectural Design Project (12) Development of concept design for complex buildings with attention to clarity of concept. Search for appropriate form and structure, technical requirements and design of details. Folloishment of visual and written pre- sentations which support students' arguments for design concept and its development. Required review by fac- ulty representing all areas of the architecture program. May be repeated for a specific case study to integrate technical information sources and their proper use. Formulation of project objectives and requirements. Verbal, written, and diagrammatic presentation illustrating a basic design approach, concept, and method. Preparation for 4600. This course may be taken the quarter immediately preced- ing 4600 Comprehensive Architectural Design Project. W.


4801 American Architecture (3) Development of North American architecture from arrival of immi- grants in 1607 until 1860. W.

4802 American Architecture (3) Stylistic periods from the Gothic Revival through the twentieth centu- ry. S.

4803 Oriental Architecture (3) The eastward expansion of the Fertile Crescent to the Indus Valley. Hindu, Buddhist, and Mughal architecture in India. Architec- ture in China and Japan from the earliest beginnings. A.

4804 The International Style (3) Architecture of the International Style 1922-1952 with antecedents and influences. A.

4805 Indigenous Architecture (3) Study of worldwide "architectures of people" reliant upon climatic con- ditions, availability of materials, and economic level of the client. Prototypical mixed-use structures through twentieth century vernacular. A.

4806 History of Architectural Technology (3) Build- ing materials and construction techniques from antiquity to the present. A.

4807 Tennessee Architecture (3) History of settle- ment patterns and building in Tennessee. F.

4808 History of the City (3) Examination of historical change in urban form and design. Survey. Case studies.

4809 Literature of Architecture (3) Survey of archi- tectural writing. Relationship between literature and design.

4810 Aesthetics in Architecture (3) Philosophies of art underlying the practice of architecture. F, W, S.

4811 Special Topics in History, Theory and Criticism (1-4) Special topics in history-related subjects. May be repeated. Maximum credit 6 hours.

4812 Contemporary Architecture (3) Twentieth cen- tury architecture in Russia, Czechoslovakia, Poland, Hungary, East Germany, Rumania, Bulgaria, Yugo- slavia. S.

4813 Medieval Architecture (3) History of architecture from the decline of Rome to the beginning of the Renaissance. A.

4814 Forms of Utopia (3) Ideas and architectural expres- sions of Utopian movements.

4815 Criticism Seminar (3) Theories, function, and techniques of architectural criticism. S.

4816 Architects in Social Criticism (3) Writings which illustrate technological, political, and anthropological assumptions of some nineteenth and twentieth cen- tury architects.

4817 Architecture since 1945 (3) Recent architectural developments and views of the future. F.
4818 Theory of Architectural Form (4) Concepts and principles of form in architecture. Consideration of culture, symbol, process of space conception, enclosure, function, technology, and context as form determinants. Expression, image, and shape in terms of architectural form.

4820 Special Topics in Architecture (1-4) Individual projects under faculty direction. Credit adjusted to project complexity and level of effort. May be repeated. Maximum credit 6 hours. E.

4821 Design Methods (3) Application of general systems theory and other methods to architectural design. Research discipline and scientific method considered.

4825 Current Issues in Architecture (3) A review of emerging approaches to design, their underlying principles and background in recent practice. E.

4830 Introduction to Preservation (3) History and theory of architectural preservation and restoration. F.

4831 Preservation Technology (3) Techniques of preservation: dating, methods of analysis, history of materials and technology used in old buildings. W.

4832 Descriptive Analysis of Historic Buildings (3) Identification and analysis of characteristic elements of buildings from various architectural periods, with emphasis on American architecture. Survey techniques. S.

4833 Preservation Law (3) Legal aspects of contemporary preservation activity.

4840 Project Management (3) Principles, methods, and application of project management to the total building process. Project manager function, responsibilities, and activities investigated through case studies, job history reviews, and project simulation.

4841 Construction Management (3) Principles, methods, and application of construction management to the total building process. Construction manager function, responsibilities, and activities investigated through case studies, job history reviews, and project simulation.

4842 Marketing Architectural Services (3) Marketing of architectural practice by study of cases, theories, public relations procedures, and understanding sales of architectural services, both basic and comprehensive. F.

4843 Contract Documents (3) Analysis and theory of contract documents by application of production techniques and procedures.

4844 Advanced Contracts (3) Study of contractual problems involving the architect, owner, contractor, and subcontractor.

4845 Codes and Zoning (2) Theory, review, and research of city, county, state, region, and national codes and zoning. History and development of fire safety and building codes; history and development of zoning emphasizing architect's responsibility as related to specific project application.

4846 Cost Analysis (3) Methods and theories of estimating project cost and building cost with reference to present techniques. Research in new techniques of cost analysis.

4847 Specifications (3) Theory, analysis, and methods of specifications. Emphasis placed on development and research of specifications.

4848 Architectural Development (4) Introduction to the principles and practice of the Architect as a developer. Studies the impact of economics, finance and urban policy on the design and development of real estate.

4849 Supervision (3) Theories, methods, and site study of job inspection during construction phase and construction administration.

4850 Elementary Structural Matrix Methods (4) Introduction to the generalized matrix methods of analysis of structures. Review of matrix algebra and vectors; development of member stiffness and flexibility matrices; assembly of structure stiffness and flexibility matrices. Prereq: Consent of instructor. (Same as Civil Engineering 4850 and Engineering Science and Mechanics 4850.) SU.

4850 Energy Conservation in Envelope Load Dominated Buildings: Residential and Small Commercial (3) Residential and small commercial building energy design is concerned with balancing heat flow through the external skin of the building. Local climate evaluation will be used to determine design strategies. Site planning, building size and orientation, window area, wall treatment, infiltration control, and other design elements that take advantage of environment and climate will be discussed. Energy use quantification methods will be explored in order to make valid economic judgments about energy design features. Prereq: 3116, 3216, 3316.

4861 Energy Conservation in Internal Load Dominated Buildings: Commercial (3) In large commercial buildings more energy is consumed in maintaining internal program operations than in balancing heat flow through the external skin of the building. Architectural program analysis to achieve a design configuration in sympathy with energy design opportunities will be discussed along with basic energy use components of internal load dominated buildings. Energy use quantification methods will be explored in order to make valid economic judgments about energy design features. Prereq: 3116, 3216, 3316.

4862 Fire Protection in Structures (3) Characteristics of fires in buildings. Fire codes, building evacuation, sprinklers and other fire protection systems, emergency power, lighting, and fire resistant materials and construction.

4863-64-65 Advanced Mechanical and Electrical Systems (3,3,3) In-depth analysis and innovative concepts in design of heating, ventilating, air conditioning, lighting and electrical distribution systems in buildings. Prereq: 3316. 4863-F; 4864-W; 4865-S.

4870 Architectural Photography (3) Photography as a design, research, and presentation medium. Emphasis on architectural photography using black and white media. F, W, S.

4871 Advanced Architectural Photography (3) Application of special photographic techniques with emphasis on color printing and processing. Prereq: Consent of instructor. F, W, S.

4873 Advanced Architectural Graphics (3) Specialized and advanced (special) techniques of architectural presentation. Rendered perspectives and color.

4881-82 Advanced Structural Design I, II (4,4) Analysis, and design of basic building structures. Structural and constructional aspects of building, including structures in steel, concrete, masonry, and timber to satisfy loading and building code requirements. Prereq: 3214 or equivalent.

4883-84 Advanced Architectural Structures I, II (3, 3) Philosophy of structural design in relation to materials and form. Advanced mathematical and experimental analysis of structures, including use of computer programs. Prereq: 4891 or equivalent.

4897 Structural Design for Protection Against Extreme Hazards (3) Probability, risk, human values, insurance. Survey of possible hazards: floods, fire, hurricanes and tornadoes, earthquakes, nuclear effects, internal and external explosions. Building code and engineered design of steel, masonry and wood structures to resist extreme effects. Protective construction for human needs. Fire protection engineering, fire phenomena, life safety analysis, high-rise building fires.


4899 Computer-aided Design (3) Survey of computer applications in architectural program planning and implementation. Prereq: 3114. W.


4904 Advanced Design of Concrete Buildings (3) Precast and on-site concrete construction and maintenance, foundations, floor and wall systems. Domes and shell roofs. Prereq: 4891 or equivalent.

4906 Proxemics (4) (Same as Interior Design 4960.)

4950 Environment as Code (4) (Same as Interior Design 4950.)