ARCHITECTURE (ARCH)

ARCH 501: Analysis of Architectural Precedents: Ancient Industrial Revolution

3 Credits

Analysis of architectural precedents from antiquity to the turn of the twentieth century through methodologies emphasizing research and critical inquiry. The 20th century Italian architectural historian and theorist Manfredo Tafuri argued that architecture was intrinsically forward-looking and utopian: "project" in both the sense of "a design project" and a leap into the future, like "projectile" or "projection." However, he also argued that architectural history, understood deeply and critically, is indispensible if that leap is to make the world a better place. For any new building to make a positive and meaningful contribution to the physical and human world, architects must not only know what they can build, but what has been built, and what architecture's positive and negative impact has been in the past. This course will introduce the history of architecture from antiquity to the turn of the 20th century through (1) ten selected buildings, one covered each week, and (2) a methodology emphasizing research and critical inquiry. Borrowing from the "problem-based learning" approach that is central to studio education, this class will present "question-driven history." Students will learn how to find, use, and critique architectural history resources by attempting to answer six fundamental questions for each of the studied buildings.

Concurrent: ARCH 531

ARCH 502: Analysis of Architectural Precedents: Modernism

3 Credits

Analysis of architectural precedents of modernism from its multiple, disputed points of origin through the late twentieth century. What is "modern" architecture? What conditions gave rise to the various movements that have come to dominate design since the industrial revolution? What sort of design did these theoretical works and movements produce, and how did it contribute to architecture's development? An understanding of modernism and its legacy is crucial to a thorough understanding of the architectural culture of the 21st century. By examining buildings from early modernism to today, this course will introduce the theory of modern architecture from its multiple, disputed points of origin through the late twentieth century. Our operative term will be modernisms, in the plural. "Modernism" is a convenient and important label, but its suggestion of unity can camouflage the complexity of a phenomenon that spans decades, cultures, continents, and ideas.

Prerequisite: ARCH 501; Concurrent: ARCH 532

ARCH 503: Materials and Building Construction I

3 Credits

Examination of fundamental and advanced building materials, systems and construction technologies associated with their architectural use.

Concurrent: ARCH 531, A E 421

ARCH 504: Materials and Building Construction II

3 Credits

Continuing examination of fundamentals and advanced building materials, systems and construction technologies associated with their architectural use. ARCH 504 Materials and Building Construction II (3) This first-year graduate seminar course will continue to present students with information on fundamental and advanced building materials and systems and on construction technologies associated with their architectural use. Students will also consider the advancements in architectural materials and technologies. It is the second part of a two-semester sequence preceded by ARCH 503. Recurrent course themes include 1) architecture as a product of culture (wisdom, abilities, aspirations), 2) architecture as a product of place (materials, tools, topography, climate), the relationship between architectural appearance presented and the mode of construction employed, 3) materials and making as an expression of an idea and 4) the relationship of a building whole to a detail. This course is motivated by these concerns: a firm belief that architects must know and engage the age they are living in, so as to design and represent it with extreme appropriateness. The course explicitly addresses engagement with society/culture and its appropriate representation by asking students to form opinions about the architectural potential of contemporary and emerging technologies. Their opinions are informed by the presentation of architectural materials and associated construction methods as they evolved - contextualized by human history and by their application in the built environment. In this class students are seeing the material and technological means of making architecture continuously altered by shifting human cultural desires and artistic/scientific/industrial developments. They are simultaneously receiving instruction in their application and use. Through assignments, students also work directly with materials at full scale and learn to represent construction systems through the conventions of drawing and modeling.

Prerequisite: ARCH 503; Concurrent: ARCH 532, A E 422

ARCH 510: Contemporary Architecture and Planning Theories

3 Credits

Examination of core architectural and urban theories through a critical analysis of key concepts from antiquity to the present.

Prerequisite: ARCH 502; Concurrent: ARCH 533

ARCH 511: Theoretical Perspectives in Architecture

3 Credits

The impact of rationalism and romanticism on contemporary developments and theoretical postures in architectural design.

ARCH 512: Critical Theory in Architecture

6 Credits

Inquiry into paradigms of critical theory in architecture theory, practice, and teaching. Evaluation of central texts, methods, theories, and outcomes. ARCH 512 Critical Theory in Architecture (6)ARCH 512 is composed of six chronologically arranged units of study that examine the major developments in the evolution of discursive practices that ground architecture theory, teaching, and practice. Modern and post-Modern critical theories in architecture have borrowed from a number of tangent disciplines, such as Phenomenology, Positivism, Existentialism, Narratology, Structuralism, Deconstruction, Grounded Theory (social sciences), Cognitive-Behaviorism, Neo-Kantianism, Psychoanalysis, Reception Theory, etc. Historical methodology, Archaeology, Anthropology Art History, and other disciplines have also had their impact. As a result, critical theory in architecture typically lacks uniform methodologies and stable definitions. In recent years, many disciplines have undergone

attempts to consolidate discourse around the influence of language and culture within the historical context of evolving world ideologies and their effect on communication, material culture, and the physical environment. Architecture has responded to this general trend in a number of ways that invite cross-disciplinary comparisons and methodological adaptations. The course will take advantage of featuring visiting scholars whose expertise in diverse areas of study will provide participants with direct contact with the widest possible range of theoretical perspectives. The strategy of the course will be a comparison and critical evaluation of what appear to be the most effective research methods within the pressing concerns of environment, population growth, material resource depletion , and international conflict. The aim will be to establish relevance as well as research competence and effective expression.

Prerequisite: admission into Ph.D. Program in Architecture or permission of instructor

ARCH 512A: Doctoral Research Theory

3 Credits

Inquiry into paradigms of theory in architecture and landscape architecture, as pertain to doctoral level research, practice, and teaching.

ARCH 512B: Doctoral Research Design

3 Credits

Research design and methods, sampling strategies, potential biases, confounding problems, and the limits of inference in architecture and landscape architecture research.

Prerequisite: ARCH 512A

ARCH 519: Research in Architecture and Urban Design

3 Credits

This course prepares M. Arch. students to conduct research leading to their design project by looking at foundational methods in the field. It also trains students to identify significant project topics and engage in individual critical research in order to build the intellectual and scholarly armature sustaining the future design that every student will undertake. The target is to raise critical awareness of the social, cultural, economic, and disciplinary complexities in the context of different spatial practices. The course will engage research in architecture in order to find opportunities to make significant claims contributing to the advancement of the field. The course will explore different methodologies, whether based in the humanities or the sciences, in order to inform research paradigms in the discipline of architecture in academic institutions. In addition, the course will explore the specifics of formal speculation as a form of knowledge, as well as the relationship between the discipline and its formal, cultural, and economic past, present, and future.

Prerequisite: ARCH 534

ARCH 520: Methods of Inquiry in Architecture and Urban Design

3 Credits

Introduction to the methods of research and inquiry commonly used in architecture and urban design.

ARCH 521: Visual Communications I

2 Credits

Examination of two and three-dimensional graphic communication and modeling techniques for an advanced understanding of visual communication in architecture.

Concurrent: ARCH 531

ARCH 522: Visual Communications II

2 Credits

Continuing examination of two and three-dimensional graphic communication and modeling technqiues for an advanced understanding of visual communications in architecture. ARCH 522 Visual Communications II (2) This course introduces students to a wide range of digital drawing, modeling and output techniques and concepts that are essential for architectural design in order to formulate knowledge and expertise, and investigate their potential in architectural design studio. While providing a theoretical standpoint of contemporary methodologies, knowledge gained in this course will allow students to work rigorously and precisely through conceptual exploration, design development and ultimately meaningful representation of their design intentions. Skills developed in ARCH 521 will provide the foundation for work performed in this course.The course will be conducted in the form of weekly lectures to cover theories and methods, and accompanying weekly working sessions, software and hardware demonstrations with individual instruction in the computer lab. Brief lab assignments will be assigned to ensure proliferation and adoption of course material. The coursework maybe coordinated with design studio (ARCH 532) assignments providing the students with the opportunity to master their digital skills in a meaningful manner.

Prerequisite: ARCH 521; **Concurrent:** ARCH 532

ARCH 531: Architectural Design I

6 Credits

Studio studying the core methods of the discipline of architectural design and developing skills related to its expression and communication. This course prepares students to understand fundamental architectural elements and concepts, to develop a sensitivity and awareness required for valid interpretations, and to develop a reflective and critical design process with emphasis on one's individual ability to articulate ideas. The major means of accomplishing this is through the design of simple buildings and environments. The semester is divided into two halves: The first half of the semester focuses on fundamental and abstract principles of architectural design, and the theory associated with design principles. It covers architectural fundamentals such as drawing and making models through a series of abstract exercises, and introduces the principles and methods used at various stages of design analysis and synthesis processes. The second half of the semester makes a transition from abstract principles to fundamental architectural design principles such as function, scale, and structure to concepts of space and form, as they pertain to small scale design projects. The assigned projects explore and develop conceptual strategies for fundamental formal and spatial design, emphasizing the role of ordering principles and of fundamental architectonic elements in the implementation of design intentions.

Prerequisite: ARCH 530; **Concurrent:** ARCH 503, ARCH 521 , A E 421

ARCH 532: Architecture Design II

6 Credits

Studio focusing on the design of small to medium scale architecture that addresses the complexity of a total work.

Prerequisite: ARCH 503 , ARCH 531 , A E 421; Concurrent: ARCH 504, ARCH 522 , A E 422

ARCH 533: Architectural Design III

6 Credits

Studio emphasizing the design of multi-functional buildings, and stress the creative synergy among building design, structure, site, and context.

Prerequisite: ARCH 504 , ARCH 532 , A E 422; Concurrent: ARCH 510, A E 211

ARCH 534: Architectural Design IV

6 Credits

Studio developing advanced designs for comprehensive buildings responding to human needs in terms of cultural meaning, context, and technical requirements.

ARCH 536: Design-Inquiry

1-12 Credits/Maximum of 12

Integration of research with the designing of architectural and urban settings.

Prerequisite: ARCH 520 and approval of advisor

ARCH 541: Topics in Theory

3 Credits

A series of presentations on the development of contemporary architectural theory.

Prerequisite: ARCH 511

ARCH 542: Topics in Community and Urban Design

3 Credits

Community and urban design as an area of design inquiry and interdisciplinary practice. ARCH 542 ARCH 542. Topics in Community and Urban Design (3)The intention of this course is to introduce students to the fundamental elements of community and urban design practice within the fields of architecture, landscape architecture, and planning. An investigation into the diverse traditions of design practice- -technical, esthetic, and theoretical -- will highlight the role that design plays in the urban and community context and also serve as a powerful medium for analyzing the confluence of the social, economic, political, and ecological dimensions that give form to cities and communities. An objective of the course will be to develop a critical perspective in architectural design vis-a-vis the restructuring of urban and community space.Topics to be covered in the course include: history of the discipline, contemporary urban and community issues, methodologies and techniques in community action research and participatory design, and introduction to the case study method of analysis. It is expected that students will actively participate in class discussions, present a case study of a project related to the topics covered in the class, and submit a research paper on the selected case study.ARCH 542 will be offered as a 3-credit course on an annual basis during the spring semester. Students with graduate standing in architecture and landscape architecture will be given priority for enrollment. However, a limited number of other students may enroll pending consent of the instructor.

Prerequisite: graduate standing or consent of instructor

ARCH 543: Topics in Digital Design

3 Credits

Inquiry into digital design paradigms of architecture and related disciplines; exploration design principles and operations supported in digital/virtual design environments.

Prerequisite: graduate standing or consent of instructor

ARCH 550: Ethics in the Built Environment

3 Credits

Ethics In the Built Environment is an applied theory course that uses negotiation strategies to examine issues broadly relating to the creation and use of the built environment, including research practices and professional ethics. The course examines the role of power imbalances as underlying ethical questions, and discusses means of mediating the resulting ethical problems in a sustainable manner. Through readings, discussions, short exercises, and a term paper, students will gain a greater awareness of ethical issues raised through the production and use of the built environment, and will develop tools to asses ethical issues and identify appropriate resolutions. Topics covered in this course include: defining ethical concepts, tools for evaluating ethical issues in the built environment, understanding built power and the role of empowerment, the power of marketing, accuracy in historical research, urban design and planning and the right to the city, gender and the built environment, architectural practices, the ethics of green architecture, the ethics of design computing, as well as research on individual case studies.

ARCH 591: Architectural Research

2-12 Credits/Maximum of 12

Guided research project.

ARCH 596: Individual Studies

1-9 Credits/Maximum of 9

Creative projects, including nonthesis research, which are supervised on an individual basis and which fall outside the scope of formal courses.

ARCH 597: Special Topics

1-9 Credits/Maximum of 9

Formal courses given on a topical or special interest subject which may be offered infrequently.

ARCH 600: Thesis Research

1-15 Credits/Maximum of 999

No description.

ARCH 601: Ph.D. Dissertation

0 Credits/Maximum of 999

Ph.D. Dissertation Full-Time

ARCH 602: Supervised Experience in College Teaching

1-3 Credits/Maximum of 6

Supervised experience in teaching and orientation to other selected aspects of the profession at The Pennsylvania State University

ARCH 603: Foreign Academic Experience

1-12 Credits/Maximum of 12

Foreign study and/or research constituting progress toward the degree at a foreign university.

ARCH 610: Thesis Research Off Campus

1-15 Credits/Maximum of 999

No description.