

Pre-professional Course Descriptions:

ARC 2133 - Principles of Structures
ARC 2233 - Principles of Environmental Systems
ARC 4183 - Environmental Systems
ARC 4283 - Architectural Structures

Required Course Descriptions - M.Arch 2 Sequence:

ARC 5133 - Professional Architectural Practice and Ethics
ARC 5173 - Architectural Theory and Criticism
ARC 5193 - Principles of Global Architecture: Place, Context & Culture
ARC 5733 - Advanced Building Technology and Sustainability
ARC 6126 - Advanced Design Studio
ARC 6136 - Advanced Topics Studio
ARC 6146 - Advanced Technical Studio
ARC 6931 - Master's Project Preparation
ARC 6996 - Master's Project Studio

Required* Course Descriptions - M.Arch 3 Sequence Preparatory Sequence:

***ARC 5003 - Architectural Principles**
***ARC 5156 - Introductory Design Studio I**
ARC 5166 - Introductory Design Studio II / Building Design Studio
ARC 5176 - Introductory Design Studio III / Building Design Studio
***ARC 5623 - History of Modern Architecture**
***ARC 5913 - Introduction to Construction Materials and Concepts**
***ARC 5923 - Principles of Structures**
***ARC 5933 - Architectural Structures**
***ARC 5943 - Principles of Environmental Systems**
***ARC 5953 - Environmental Systems**

* Courses may be waived based on prior experience via review of Graduate Advisor of Record

Pre-professional Course Descriptions:

ARC 2133 Principles of Structures (3 Credit Hours)

Catalog Description: *An introduction to the principles of architectural structures as related to architectural design. Includes consideration of spatial, structural, and aesthetic issues of building structural systems, and introduces structural behavior, forces and responses in structural systems.*

Course Goals & Objectives (list): Understanding the basic concepts in structural design. Understanding the basic structural forms and systems as related to architectural design and construction. Understanding the potentials and issues of basic structural systems through built examples. Developing the knowledge of building systems and interior construction. Understanding the basics of Statics with focus on the effects of loads on a structural member or a system. Developing the ability to interpret on the effects of loads and load combinations on behavior of structures. Producing student works that demonstrate that design solutions affect and are impacted by structural systems.

Student Performance Criteria:

B5. Structural Systems

Topical Outline: Introduction to Structural Concepts; Spatial Features of Structural Systems; Beams and Slabs; Cantilever Systems; Columns and Walls; Trusses; Cables; Arches; Frames; Vaults and Domes; Shells; Membranes; Loads; Stress; Forces and Movements; Stability and Equilibrium; Supports, Reactions and Restraints of Movements; Load Distribution; Introduction to Beam Behavior; Tributary Areas; Shear and Moment Diagrams for Beams.

Prerequisites: Graduate standing or consent of instructor, and enrollment in the M.Arch 3 program.

Textbooks:

The Structural Basis of Architecture by Bjorn Sandaker, Arne Eggen and Mark Cruvellier

Offered: Semester / Year

Fall / 2014

Fall / 2015

Spring / 2015

Faculty Assigned: (four semesters prior):

Fall / 2014 – Beeson, Calvetti

Fall / 2015 – Beeson

Spring / 2015 – Calvetti

ARC 2233 Principles of Environmental Systems (3 Credit Hours)

Catalog Description: *Introduction to the design of environmentally responsive buildings and the natural and artificial systems that support them. Includes consideration of topics such as, embodied energy, active and passive heating and cooling, indoor air quality, solar orientation, daylighting and artificial illumination, acoustics, and building services systems.*

Course Goals & Objectives (list): This course is intended to give the students both a fundamental and practical knowledge of building environmental systems and strategies in thermal, lighting, and acoustic conditions in buildings. It also provides a working knowledge of the interrelated building systems necessary to support human physiological benefits.

The course covers passive and active environmental system strategies in heating, ventilating and air-conditioning (HVAC) systems, day-lighting, architectural lighting systems, and acoustic systems, building design performance, and human factors related to building indoor environmental quality.

Student Performance Criteria:

B6. Environmental Systems

Topical Outline:

The Sun and the Earth, The Sun and the Buildings, Unit Conversion & Basic Physics of Heat Transfer, Conduction (Building materials, Thermal mass), Convection and Radiation (Reflectance, Transmittance), Design of Heat Loss and Heat Gain, Thermal Comfort and Adaptive Comfort, Psychrometrics, Light, Color, Vision, Light and Daylighting, Visual Comfort, Architectural Lighting Systems, Climate Zones and Building, Renewable Energy (Photovoltaic Systems and Wind Turbines), Passive Heating and Cooling Systems, Mechanical Heating and Cooling Systems, Sound, Acoustics, Materials, Water and Buildings

Prerequisites: Graduate standing or consent of instructor, and enrollment in the M.Arch. 3 program.

Textbooks:

Norbert Lechner; *Heating, Cooling, Lighting: Sustainable Design Methods for Architects*, 4th Edition. Stein, Reynolds, Grondzik, Kwok (2010). *Mechanical and Electrical Equipment for Buildings*, 11th Ed

Offered: Semester / Year

Fall / 2014

Summer / 2015

Fall / 2015

Faculty Assigned: (four semesters prior):

Fall / 2014 – Matiella

Summer / 2015 – Azari

Fall / 2015 – Suk

ARC 4183 Environmental Systems (3 Credit Hours)

Catalog Description: *Advanced issues in the design of environmentally responsive buildings and the natural and artificial systems that support them, such as embodied energy, active and passive heating and cooling, indoor air quality, solar orientation, daylighting and artificial illumination, acoustics, and building services systems. Includes the use of appropriate performance assessment tools.*

Course Goals & Objectives (list):

Environmental control systems have a major role in buildings' energy performance, environmental footprint, occupants' comfort and health, and life-cycle costs. It is therefore important that architects have sufficient understanding of these systems in order to properly integrate them into their design process.

Students successfully completing this course may expect to:

- Understand the interactions between climate, architecture, and humans.
- Understand sustainability guidelines as related to design of buildings
- Be able to collect climatic information and translate it into architectural solutions for climatic adaptation.
- Understand major mechanisms of heat transfer in buildings
- Understand and apply the principles of thermal, lighting (natural and electric), and acoustical design in buildings and their interiors.
- Understand principles and determinants of indoor air quality inside the buildings.
- Be able to make early design decisions with regard to appropriate architectural forms and systems that meet heating, cooling, lighting, and acoustical privacy needs of the occupants by responding to climate and surrounding environment.
- Understand major types of mechanical environmental control systems and their distribution.
- Understand energy, security, building control systems, and building service systems.

Student Performance Criteria:

- B6. Environmental Systems
- B9. Building Service Systems

Topical Outline:

Sustainable Design, Climate & Thermal Comfort, Solar Geometry, Passive Solar and Shading, Light, Color and Vision, Daylighting Design, Artificial Lighting, Heat Flow Concepts, Thermal Envelope, Design Heat Loss and Gain, Energy Use, Advanced Passive Heating and Cooling Systems, Photovoltaic Systems, HVAC, Building services, Sound and Acoustics, Noise Control.

Prerequisites: Graduate standing or consent of instructor, and enrollment in the M.Arch. 3 program.

Textbooks:

- Lechner, N. *Heating, Cooling, Lighting; Sustainable design methods for architects*. 4th Ed. Wiley
- Stein, Reynolds, Grondzik, Kwok. *Mechanical and Electrical Equipment for Buildings*, 12th Ed.

Offered: Semester / Year

- Fall / 2014
- Spring / 2015
- Summer / 2015
- Spring / 2016
- Summer / 2016

Faculty Assigned: (four semesters prior):

- Fall / 2014 - Azari
- Spring / 2015 – Azari
- Summer / 2015 -Rashed-Ali
- Spring / 2016 – Azari
- Summer / 2016 – Rashed-Ali

ARC 4283 Structures (3 Credit Hours)

Catalog Description: *Advanced study of architectural structures; considers the physical principles that govern classical statics and strength of materials. Graphical and mathematical design of structural systems. Consideration of the role of structural articulation in the design of buildings.*

Course Goals & Objectives (list): Understanding the basics of structures, structural systems and structural mechanisms. Providing the students with a thorough knowledge about the importance of selecting the appropriate structural system and construction method. Forming the basis to explore innovative ideas within real world settings by means of structural theory, analysis and design. Developing the concept of load transfer mechanism and the effects of loads on structural systems. Improving the perception of the capacity of various structural members and structural materials. Exploring the well-known building examples with different high-rise and wide-span structural systems to inspire further research on structures in terms of sustainability and structural articulation considerations. Developing the ability to assess, select, and conceptually integrate structural systems, building envelope systems, environmental systems, life-safety systems, and building service systems into building design.

Student Performance Criteria:

B5. Structural Systems

Topical Outline:

Structural Design Loads and Methods; Design and Analysis of Trusses; Design and Analysis of Cables and Arches; Design and Analysis of Beams; Design and Analysis of Columns and Walls; Design and Analysis of Continuous Structures; General Design Principles of Membranes and Shells; General Design Strategies and Constructional Approaches.

Prerequisites: Graduate standing or consent of instructor, and enrollment in the M.Arch3 program.

Textbooks:

Structures by Daniel Schodek and Martin Bechthold

Offered: Semester / Year

Fall / 2014

Spring / 2015

Spring / 2016

Faculty Assigned: (four semesters prior):

Fall / 2014 - Beeson

Spring / 2015 - Beeson

Spring / 2016 - Beeson

M.Arch 2 Sequence:

ARC 5133 Professional Architectural Practice and Ethics (3 Credit Hours)

Catalog Description: *A study of national, international and legal business practices and conventions relating to the building industry. Course material considers project delivery options, construction methodologies and corresponding administration systems, liability, contract documents, and ethics as practices that inform the professional practice of architecture.*

Course Goals & Objectives (list): As a relevant spring board from academia to the workplace, this course is intended to expand students' knowledge regarding:

1. the evolving legal context within which the registered architect must practice.
2. professional contracts that bring architecture into existence.
3. the formation of design firms and related legal entities.
4. the basic principles of office organization, leadership, business planning, marketing, negotiation, and financial management.
5. forms of project delivery and the types of documentation required to render competent and responsible professional services.
6. internships in professional development and the reciprocal rights and responsibilities of the intern and the employer.
7. the breadth of the architect's roles in project inception, schematic design, design development, construction documents, bidding and negotiation, and construction administration relative to seeing projects built.
8. the ethical issues involved in the formation of professional judgments.
9. the development of communication and business management skills.
10. an exploration of the shifts that have occurred in the social, political, technological, ecological, and economic influences (past and present), relative to the contributions of architects and their allied design and construction accomplices concerning the built environment.
11. a morality for the responsibility that design practitioners should assume to be good stewards of the land and the bountiful yields of nature that become the materials with which humans build.

Student Performance Criteria:

- B10. Financial Considerations
- D1. Stakeholder Roles in Architecture
- D2. Project Management
- D3. Business Practices
- D4. Legal Responsibilities
- D5. Professional Conduct
- Learning Culture
- Professional Opportunity
- Community and Social Responsibility

Topical Outline: The course is organized to reinforce four critical learning and practice experience distinctions deemed critical to an architect's career as a professional collaborator.

The legal obligation of what it means to be a licensed architect and how one achieves such a professional standing

The respectful relationships that must be cultivated between client, consultants, constructors, investors, etc., as contribute to the building industry and the process of making places for people.

To demystify the processes of how works of architecture are destined to be part of the fabric of urban complexity involving determined hard work, deliberate commitments to sound communications, and principled professional aspirations that extend beyond individual goals.

To understand that all decision making requires forethought beyond the anticipated tangible outcomes of architecture in advancing a respectful consideration for the social, environmental, and aesthetic values as contribute to the ever-improving and beneficial framework of dignified human existence.

Prerequisites: Graduate standing or consent of instructor.

Textbooks:

Professional Practice; A Guide to Turning Designs into Buildings by Paul Segal, FAIA, Published by W.W. Norton & Co., New York & London 2006

The Architect's Handbook of Professional Practice-Student Edition, published by the American Institute of Architects (most recent edition)

The Architect as Worker; Immaterial Labor, the Creative Class, and the Politics of Design, edited by Peggy Deamer, Published by Bloomsbury Press, London 2015

Offered - Semester / Year:

Spring / 2014

Spring / 2015

Faculty Assigned:

Lewis

ARC 5173 Architectural Theory and Criticism (3 Credit Hours)

Catalog Description: *A survey of contemporary architectural theory and criticism from 1950 to the present.*

Course Goals & Objectives (list): The objectives of the class are fivefold; [1] Recognize recurring problems, issues, and arguments that contemporary architectural theorists address in their arguments; as well as to understand that this body of literature is the result of an extended conversation over time. [2] Analyze each texts in terms of assessing the position or argument of the author, the issues, questions, or problems to which the author is reacting to in the text, how the author claims authority for the argument, the author's conception of the essence of architecture, the criteria that is suggested in the text for criticism; how the text conceptualizes architecture. [3] Facilitate a discourse and conversation by analyzing the assigned readings. [4] Formulate and defend a position or argument in reaction to the issues and positions taken by significant authors within contemporary theory. [5] Synthesize an architectural agenda during your graduate education, and especially your thesis, and across your professional career to develop a critical, issue oriented professional practice that will contribute to architectural culture.

Student Performance Criteria:

- A1. Professional Communication Skills
- A2. Design Thinking Skills
- A3. Investigative Skills

Topical Outline:

Introduction: the history of ideas and architectural theory from 1780 to 1960.

The 1960's: the questioning and fracturing of orthodox modernism

The 1970's, unraveling modernity: social underpinnings of modernism and the city / technological utopias / *unraveling modernity 1968-73* / critiques of modernist architecture / other social issues and social agency in architecture / questioning the entrenchment of power / *the crisis of meaning* / semiotics / the focus on the everyday, the inclusive, things as they are, and the ironic / *early neo-traditional postmodernism* / ecological architecture / case studies of sustainability

The 1980's: regionalism, neotraditional urbanism, and looking outside the discourse / post-modernism and critical regionalism / traditionalism and new urbanism / regionalism and non western conceptions / post structuralist theory

The 1990's to the present: cross fertilization of other disciplines: deconstruction / contemporary work / wake of the storm / pragmatism and post-criticality / minimalisms / sustainability and beyond

Prerequisites: 2017 catalog will require course be taken in first semester of M.Arch 2 sequence.

Textbooks:

Jencks, Charles, and, Kropf, Karl, *Theories and Manifestos of Contemporary Architecture*, Wiley-Academy 2007.

Mallgrave, Harry Francis, and, Goodman, David, *An Introduction to Architectural Theory, 1968 to the Present*, Wiley Blackwell, 2011.

Sykes, Krista. *Constructing a New Agenda: Architectural Theory 1993-2009*, 2010

Conrads. Ulrich. *Programs and Manifestoes on 20th Century Architecture*, edited by, 1971.

Offered (Semester / Year)

Fall / 2015

Fall / 2016

Faculty Assigned: (four semesters prior):

Baron, Burian

ARC 5193 Principles of Global Architecture: Place, Context & Culture (3 Credit Hours)

Catalog Description: *A study of global, historical, and cross-cultural architectural principles. Consideration is given to the political, social, ecological, economical, and/or technological context that informs the work as well as the diverse social and spatial patterns, values, and needs of those who occupy and use buildings.*

Course Goals & Objectives (list):

Critical Thinking: The ability to ascertain cross-cultural architectural themes, ideas, design concepts, and principles underlying exemplary works of global architecture

History and Global Culture (A7): Understanding of the parallel and divergent histories of architecture and the cultural norms of a variety of indigenous, vernacular, local, and regional settings in terms of their political, economic, social, ecological, and technological factors

Cultural Diversity and Social Equity (A8): Understanding of the diverse needs, values, behavioral norms, physical abilities, and social and spatial patterns that characterize different cultures and individuals and the responsibility of the architect to ensure equity of access to sites, buildings, and structures.

Student Performance Criteria:

A7. History and Global Culture

A8. Cultural Diversity and Social Equity

Topical Outline: Topics include cross-cultural architectural principles of place form, purpose, meaning and architectural tectonics, detailing, and site design vis-à-vis the themes of space, time, matter, gravity, light, silence, dwelling, ritual, memory, landscape, and place as they appear in the exemplary architecture from around the world.

Prerequisites: Graduate Standing or consent of instructor.

Textbooks:

Reading associated with the following lectures will be posted on the course Blackboard Learn site.

The following readings will be available on 2-hour reserve in UTSA's downtown library. Christopher Alexander, (1) Notes on the *Synthesis of Form*, (2) *The Nature of Order, Book Two, the Process of Creating Life*

The Built Environment: A Collaborative Inquiry into Design and Planning, Second Edition, edited by Wendy R. McClure and Tom J. Bartuska

Gaston Bachelard, *The Poetics of Space*

Andrew Ballantyne, *Architecture, A Very Short Introduction*

Thomas Barrie, *Spiritual Path, Sacred Place: Myth, Ritual, and Meaning in Architecture*

Kent C. Bloomer and Charles W. Moore, *Body, Memory, and Architecture*

Germain Bazin, *The Baroque: Principles, Styles, Modes, Themes*

Franco Bertoni, *Minimalist Architecture*

Architectural Regionalism, edited by Vincent B. Canizaro

Dora P. Crouch and June G. Johnson, *Traditions in Architecture: Africa, America, Asia, and Oceania*

William J. R. Curtis, *Modern Architecture since 1900*

Mircea Eliade, *The Sacred and the Profane*

Hassan Fathy, *Architecture of the Poor*

Kenneth Frampton, *Studies in Tectonic Culture, The Poetics of Construction*

Leonard Koren, *Wabi-Sabi for Artists, Designers, and Poets and Philosophers*

Kevin Lynch, *The Image of the City*

Robert McCarter and Juhani Pallasmaa, *Understanding Architecture, A Primer on Architecture and Experience*

Richard Padovan, *Towards University: Le Corbusier, Mies + de Stijl*

Juhani Pallasmaa, *The Eyes of the Skin*

John Pawson, *Minimum*

The SAGE Handbook of Architectural Theory, edited by C. Greig Crysler, Stephen Cairns and Hilde Heynen, pp. 641-656

Theorizing a New Agenda for Architecture: an Anthology of Architectural Theory, 1965-1995, edited by Kate Nesbitt

Christian Norberg-Schulz, *Existence, Space and Architecture*

Amos Rapoport, *House Form and Culture*

Aldo Rossi, *The Architecture of the City*

Bernard Rudofsky, *Architecture without Architects*

Joseph Rykwert, *The Necessity of Artifice / The Idea of a Town*

Andrew Saint, *The Image of the Architect*

Martin Trachtenberg and Isabelle Hyman, *Architecture from Prehistory to Postmodernity*

Simon Unwin, *Analysing Architecture*, Fourth Edition

Dell Upton, *Architecture in the United States*

Peter Zumthor, *Atmospheres: Architectural Environments, Surrounding Objects*

Offered: Semester / Year

Spring / 2015 - not offered.

Spring / 2016

Faculty Assigned: (four semesters prior):

Spring / 2016 – Baron

ARC 5733 Advanced Building Technology and Sustainability (3 Credit Hours)

Catalog Description: *An advanced study of building technology, sustainability, and building performance. Includes consideration of sustainable techniques, technologies, building enclosure, and environmental systems for new and existing buildings. Addresses issues of systems integration and performance optimization.*

Course Goals & Objectives (list): The course will focus on advanced topic in environmental sustainability related technologies and systems. Topics covered will include a range of technological advances in building materials, environmental systems, design decision support tools, and project delivery systems. Special emphases will be placed on issues related to the design of high-performance, energy-efficient, and carbon-neutral buildings.

Student Performance Criteria:

- B6. Environmental Systems
- B7. Building Envelope Systems and Assemblies
- B8. Building Materials and Assemblies
- B9. Building Service Systems
- Stewardship of the Environment

Topical Outline:

Sustainability in the Built Environment
Integrated Design
Building Information Modeling and Sustainability
Building Performance Analysis and Evaluation
Environmental Impacts of Buildings
High Performance Buildings
Climate-Responsive Design
Passive Heating and Cooling
Advanced Lighting Systems
Performance Simulation and Design Decision-Support Tools
High Performance facades
Mechanical Heating and Cooling
Building-Integrated Renewable Energy
Buildings and Occupant Health
Post-Occupancy Evaluation
Building Commissioning and Continuous Commissioning
Embodied energy
Life-Cycle Assessment
Parametric design & Digital Fabrication
Sustainability Rating Systems and Assessment Frameworks
Sustainability and Professional Practice

Prerequisites: Graduate standing or consent of instructor.

Textbooks:

Grondzik, W., and Kwok, A. 2014. *Mechanical and Electrical Equipment for Buildings*, 12th edition.
Hoboken, NJ: John Wiley and Sons.

Offered: Semester / Year

Fall / 2014

Fall / 2015

Faculty Assigned: (four semesters prior):
Fall / 2014 - Rashed-Ali
Fall / 2015 - Rashed-Ali

ARC 6126 Advanced Design Studio (6 Credit Hours)

Catalog Description: *An introduction to advanced architectural design, including the role of research, program preparation, and technological integration in architectural design.*

Course Goals & Objectives (list): Each student will be expected to be able to understand the mechanism of the design development by integrating all the qualitatively unique aspects of the design sequence into a project that has the overall information on the proposed reality.

Student Performance Criteria:

- A2. Design Thinking Skills
- A4. Architectural Design Skills
- A5. Ordering Systems
- A6. Use of Precedents
- B2. Site Design
- Learning Culture
- Studio Culture

Preliminary Demonstration: B1 Pre-Design

Topical Outline:

Varies depending on content and focus of course, such as: Urban design considerations, site selection, preliminary design concepts, spatial, structural and programmatic issues, design development, the quality of the environment, materiality, high performance, building analytics, climate-responsive design and lighting systems, accessibility and ADA standards, and other codes and regulations.

Prerequisites: Graduate standing.

Textbooks: N/A

Offered Semester / Year:

Fall / 2014

Fall / 2015

Faculty Assigned: (four semesters prior):

Fall / 2014 – Guarino, Nishimoto, Lombardi (1/2) - Rogers (1/2)

Fall / 2015 – Guarino, Nishimoto

ARC 6136 Advanced Topics Studio (6 Credit Hours)

Catalog Description: *An advanced architectural design studio, which allows faculty and students to explore a range of architecture-related topics in a studio setting. Content varies.*

Course Goals & Objectives (list): Varies depending on content and focus of course.

Student Performance Criteria:

A4. Architectural Design Skills
Learning Culture
Studio Culture

Preliminary Demonstration: A2. Design Thinking Skills

Topical Outline:

Varies depending on content and focus of course, such as:

Professor Caine: The Demographic and Geographic Explosion, The Need for New Housing Typologies,

Classifying Vacancy

Exercise 1: Taxonomies of Vacancy/Typologies of Vacancy

Exercise 2: Typologies of Housing

Exercise 3: Housing Prototype Design

Professor Lombardi: historic city patterns and contemporary transportation systems

The Architecture of the City – Continuity and Fragmentation of City Patterns

Identification and Presentation of Themes

Creation of Maps

Reconnecting Disconnections: Urban Infill Projects For Renaissance of Downtown and Southtown

Prerequisites: ARC 6126

Textbooks: N/A

Offered: Semester / Year

Spring / 2015

Spring / 2016

Faculty Assigned: (four semesters prior):

Spring / 2015 – Caine, Lombardi

Spring / 2016 – Pemberton, Caine

ARC 6146 Advanced Technical Studio (6 Credit Hours)

Catalog Description: *An advanced architectural design studio, which includes the integration of building materials, services, and systems, technical documentation and comprehensive design.*

Course Goals & Objectives (list): Students are expected to have acquired the abilities necessary to resolve comprehensive architectural projects that illustrate each student's capacity to make design decisions across scales while integrating:

- Design thinking
- Technical Documentation
- Investigation Skills/Pre-Design Assessments
- Ordering Systems
- Historic Traditions & Global Culture
- Considerations of Accessibility
- Sustainable Practices
- Site Design Appropriateness
- Life Safety Concerns
- Environmental Systems Accommodations
- Structural Systems Comprehension

Student Performance Criteria:

A4. Architectural Design Skills
A5. Ordering Systems
B1 Pre-Design
B3 Codes and Regulations
B4 Technical Documentation
B5 Structural Systems
B6 Environmental Systems
C.2 Integrated Evaluations and Decision-Making Design Process
C.3 Integrative Design
Learning Culture
Studio Culture
Collaboration & Leadership

Each student must demonstrate an ability to analyze, plan for, and appropriately respond to unique design challenges while working within given contextual parameters. Designers will be put to task to resolve comprehensive architectural problems in a manner befitting:

- Effective functional resolutions,
- Appropriate environmental and climatic realities,
- Justifiable construction technologies, and
- Responsible life safety/user convenience considerations

Topical Outline:

This studio is intended to reinforce methodologies and techniques relating to:

- Effective work scheduling and task prioritization
- Site analysis and Setting Interpretations
- Information assimilation
- Problem Solving relevant to spatial relationships and ordering principles, integration of interior and exterior space, analysis and documentation of historic and contemporary precedents, & applications of architectural theory
- Graphic communication skills relative to the presentation of concepts, processes, and defensible solutions.

Prerequisites: Graduate standing and consent of instructor.

Textbooks:

Site Analysis, E. White

Sun, Wind and Light, G. Z. Brown, Mark DeKay

Architect's Studio Companion, Edward Allen, Joseph Iano

Building Construction Illustrated, Francis D. K. Ching

Building Structures Illustrated, Francis D. K. Ching

Architectural Graphic Standards

Texas Accessibility Standards

Offered Semester / Year

Fall / 2014

Fall / 2015

Faculty Assigned: (four semesters prior):

Fall / 2014 - Lewis, Pemberton

Fall / 2015 - Lewis, Pemberton

ARC 6931 Master's Project Preparation (1 Credit Hour)

Catalog Description: *The course involves the research and preparation of a proposal for an independent design project.*

Course Goals & Objectives (list): The main objective is to explore theoretical discourses in order to critically absorb, evaluate and engage with subject matters of the past and present in order to develop an argument, or ask critical questions, which will articulate and redefine a pertinent architectural problem. Ultimately, however, the course aims to foster your ability to develop critical positions that translate into buildings, designs, architecture, site, program, materiality, detail, research, etc. with a clear understanding of what contribution they make in the environment, the city, culture, and the field of architecture as a whole.

Student Performance Criteria:

- A1. Professional Communication Skills
- A3. Investigative Skills
- A6. Use of Precedents
- C1. Research

Topical Outline(s):

- Identifying a Discourse
- Establishing a Theoretical Approach / (Op)-Positions
- Finding Precedents/ Projects / Buildings
- Infographics, Diagrams, Maps, Drawings: Program and Site
- Master's Project Proposal

Prerequisites: ARC 6126, ARC 6136, graduate standing and permission of the GAR.

Textbooks: N/A

Offered Semester / Year

Spring / 2015

Spring / 2016

Faculty Assigned: (four semesters prior):

Spring / 2015 – Doganer, Petrov

Spring / 2016 – Baron, Petrov

ARC 6996 Master's Project (6 Credit Hours)

Catalog Description: *A comprehensive study focusing on an independent design proposal and the complete representation of the project.*

Course Goals & Objectives (list):

The entire semester is devoted to the process of developing a comprehensive, highly resolved design project that addresses each student's Master's Project.

The studio aims to give each student the opportunity to establish an agenda that can be pursued across a professional career that could make a significant contribution to architectural culture, and be also a substantial part of each student's portfolio, and have the opportunity to produce a high quality, highly resolved project with high quality graphics, drawings, and computer and physical models.

Student Performance Criteria:

- A2. Design Thinking Skills
- A4. Architectural Design Skills
- Learning Culture
- Studio Culture

Topical Outline:

- Agenda of Issues
- Project Information and Program
- Project Conceptualization
- Representation and Documentation of Design

Prerequisites: ARC 6931, graduate standing, and permission of the GAR

Textbooks: N/A

Offered: Semester / Year

Spring / 2015

Spring / 2016

Faculty Assigned: (four semesters prior):

Spring / 2015 – Burian, Doganer, Petrov

Spring / 2016 – Doganer, Petrov

M.Arch 3 Course Sequence

ARC 5003 Architectural Principles

Catalog Description (ARC 5003): *An introduction to the basic principles and skills associated with architectural design for graduate students enrolled in the M.Arch.3 program.*

Offered cross-listed with ARC 1113:

Catalog Description (ARC 1113): *An introduction to the design and construction of the built environment. Includes consideration of professional practice, ethics, interior design, landscape architecture, planning, urbanism and construction.*

Course Goals & Objectives (list):

Upon successful completion of this course, students:

- Understand the relationship of human behavior and the built environment.
- Understand the processes of architectural education and professional practice. (IDP, NCARB, Licensure)
- Develop observational skills aimed at understanding and evaluating the qualities of buildings and spaces.
- Understand the tools and techniques associated with architectural and design practice.
- Understand the importance of architectural traditions, concepts, theories, history, and technology.
- Understand the importance of the ecological / environmental context for architecture.
- Formal, spatial, experiential, qualities of architecture / principles
- Appreciate the interrelationship and of allied professions/disciplines/cultures (landscape, construction, interior and fine arts) in architecture

Student Performance Criteria:

A8. Cultural Diversity and Social Equity

Topical Outline:

This course provides an introduction to architecture that explores the practices, principles, and wider context of architecture and design. Focuses on the role of architecture in society, culture, and the wider environmental context of the built environment.

Fundamental concepts and vocabulary, civic and environmentally responsible design, Community engagement, principles of ethical practice and the ability to connect practices + consequences, local-global relationships including environmental factors, human and cultural factors, issues of sustainability and how they influence design decision-making, interdisciplinary nature of design and construction.

Prerequisites: Graduate standing, permission of the GAR, and enrollment in the M.Arch. 3 program.

Textbooks:

Hal Box, *Think Like an Architect*, University of Texas Press, 2007.

Offered: Semester / Year

Fall / 2014 (as ARC 5183)

Fall / 2015

Faculty Assigned: (four semesters prior):

Fall / 2014 - Baron

Fall / 2015 – Matiella

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ARC 5156 Introductory Design Studio I (6 Credit Hours)

Catalog Description: *Architectural design as a theoretically informed and creative process. Provides students the opportunity to acquire fundamental design skills for the creative and practical design of architectural environments. Projects consider spatial experience, contextual response, building form and structure and the development of representational skills.*

Course Goals & Objectives (list):

ARC 5156 is the first studio that prepares students for the MArch 2 sequence. Upon successful completion of this course, students starts:

- to use appropriate representational media, including freehand drawing and computer technology,
- to convey essential elements at each stage of the programming and design process
- to use basic architectural principles in the design of buildings, interior spaces, and sites
- to recognize the varied talent found in interdisciplinary design project teams in professional practice and work in collaboration with other students as members of a design team

Student Performance Criteria:

A4. Architectural Design Skills
Learning Culture
Studio Culture

Topical Outline:

Basic issues of architectural design including both experiential and technical considerations, siting, functional layout, structural considerations, material selections and applications, and environmental concerns.

Prerequisites: Graduate standing, permission of the GAR and enrollment in the M.Arch.3 program.

Textbooks:

A Place of My Own: The Education of an Amateur Builder by Michael Pollan
Analyzing Architecture by Simon Unwin
Integrating Design in Contemporary Architecture by Kiel Moe

Offered: Semester / Year

Fall / 2014

Fall / 2015

Faculty Assigned: (four semesters prior):

John Webb

ARC 5166 Introductory Design Studio II (6 Credit Hours)

Catalog Description: *Provides students the opportunity to acquire design skills in the application of building technology and material use through the consideration of building structure and envelop. Projects consider spatial experience, programming, organizational concepts, building-to-site relations, and tectonics.*

Course Goals & Objectives (list):

Students are tasked to resolve architectural problems in a manner befitting effective functional (programmed) resolutions, spatial integrities, appropriate construction technologies, reasonable site integration, responsible site safety and user convenience accommodations, as well as sustainability considerations. Building on one's education and life experiences, the studio serves to reinforce methodologies of design problem solving grounded in:

- Effective and productive work scheduling
- Critical site analysis procedures
- Information assimilation toward sound project programming
- Design formulation based on realistic spatial relationships
- Integrations of interior/exterior environments
- Documentation of relevant precedents
- Applications of conventions of architectural theory

Student Performance Criteria:

A4. Architectural Design Skills
Learning Culture
Studio Culture

To be satisfied (2017 catalog): A5. Ordering Systems

Topical Outline:

Site analysis
Project programming
Spatial relationships
Building technology and organization
Materials and assemblies
Environmental conditions
Site integration and tectonics

Prerequisites: Graduate standing, permission of the GAR, and enrollment in the M.Arch. 3 program.

Textbooks:

Integrated Strategies in Architecture by Joan Zunde & Hocine Bougdah Taylor & Francis Group.

Offered: Semester / Year

Spring / 2015

Spring / 2016

Faculty Assigned: (four semesters prior):

Lewis

ARC 5176 Introductory Design Studio III (6 Credit Hours)

Catalog Description: *Architectural design as a theoretically informed and creative process. Provides students the opportunity to acquire design skills in the application of building technology and material use through the consideration of building structure and envelope. Projects of increasing complexity considering architectural order, precedent, urban and non-urban contexts, building performance, structure and detailing. Continues investigation of traditional and digital media.*

Course Goals & Objectives (list): Students are expected to produce a clearly articulated, appropriate for program/site, sufficiently challenging concept, design through an iterative process that shows substantial progress from initial solution, apply knowledge from collateral courses, finalize their projects with an accurate, legible, well-crafted, well-designed presentation and contribute to class discussions, design reviews and studio culture.

Student Performance Criteria:

A4. Architectural Design Skills
Learning Culture
Studio Culture

To be satisfied (2017 catalog): A5. Ordering Systems

Topical Outline:

Precedents
Accessibility
Sustainable Design
Program Preparation
Site Conditions
Structural Systems
Building Systems Integration
Building Materials and Assemblies

Prerequisites: Graduate standing, permission of the architecture Graduate Advisor of Record, and enrollment in the M.Arch. 3 program.

Textbooks: N/A

Offered: Semester / Year

Summer / 2015

Summer / 2016

Faculty Assigned: (four semesters prior):

Araiza

ARC 5623 History of Modern Architecture (3 Credit Hours)

Catalog Description: *Study of the social, aesthetic, theoretical, technical, cultural, Western and non-Western, and professional forces that form, shape, and constitute architecture of the modern era.*

Course Goals & Objectives (list):

This course will lead the student to gain, learn or develop:

- a broader understanding and appreciation of intellectual/cultural activity
- factual knowledge (terminology, classifications, methods, trends)
- an understanding of design fundamentals including theories of design and design composition
- an understanding of the Western architectural canons and tradition in architecture and urban design, as well as the climatic, technological, socioeconomic, and other cultural factors that have shaped and sustained them
- an understanding of the national and regional traditions and the local regional heritage in architecture, landscape, and urban design
- an understanding that design solutions affect and are impacted by construction systems and methods
- an understanding of the shifts which have occurred in the social, political, technological, ecological, and economic factors that shape the practice of architecture
- an ability to speak and write effectively on the history of architecture

Student Performance Criteria:

- A1. Professional Communication Skills.
- A3. Investigative Skills
- A7. History & Global Culture

Topical Outline:

Introduction; Academic Classicism, Structural Rationalism and Arts and Crafts
Developments in Arts and Crafts
Subcurrents of Classicism
Rationalism and Expressionism
Synthesis and Importation
Heroes of 20th Century Architecture
Late 20th Century Architecture

Prerequisites: Graduate standing or consent of instructor, and enrollment in the M.Arch3 program.

Textbooks:

Fazio, Michael, Marian Moffett and Lawrence Wodehouse, *Buildings across Time: An Introduction to World Architecture*, 4th edition (Boston: McGraw Hill, 2012)
Diana Hacker, *A Pocket Style Manual*, 6th edition (Boston: Bedford/St. Martin's, 2004)
William J. Curtis, *Modern Architecture since 1900*, (Upper Saddle River, NJ: Prentice Hall)

Offered: Semester / Year

Fall / 2014

Spring / 2015

Spring / 2016

Faculty Assigned: (four semesters prior):

Fall / 2014 – Alexander

Spring / 2015 – Ohlenbusch

Spring / 2016 – Ohlenbusch

ARC 5913 Introduction to Construction Materials and Concepts (3 Credit Hours)

Catalog Description: *Introduction to concepts and skills fundamental to structures, construction, building enclosure, sustainability, and interior environments along with the analysis and selection of materials, components, and assemblies. Provides an introduction to the historical role of materials in architectural and interior design.*

Offered cross-listed with: CSM 2113:

Catalog Description CSM 2113: *Introduction to materials, methods, equipment and sequences of the construction process including structural elements, components, and assemblies.*

Course Goals & Objectives (list):

- Understand the production, designation, grading and applications of major construction materials;
- Be familiar with the properties (mechanical/non-mechanical) of major construction materials;
- Understand the relationship between material properties and structural form;
- Be familiar with the construction methods of major construction materials;
- Be familiar with relevant building code.

Student Performance Criteria:

Students should have an understanding of building materials & assemblies.

Topical Outline:

Building Delivery Systems
Building Structures and Loads; Building Codes
Foundations
Wood
Heavy Timber Frame, Wood Light Frame
Wood Light Frame – Rough Carpentry
Exterior Finishes for Wood Light Frame, Windows and Doors
Interior Finishes for Wood Light Frame
Masonry
Steel Frame Construction
Light Gauge Steel Frame
Steel
Concrete
Roofing
Glass and Glazing, Cladding
Designing Exterior Wall Systems
Interior Finishes

Prerequisites: Graduate standing or consent of instructor, and enrollment in the M.Arch.3 program.

Textbooks:

Building Construction: Principles, Materials and Systems (2nd edition) by Mehta et al.
Fundamentals of Building Construction, 5th Edition, Allen and Iano, Wiley Publisher, 2009.

Offered: Semester / Year
Fall / 2013

Faculty Assigned: (four semesters prior):

Fall / 2013 - Pemberton
Fall 2015 - Gunhan

ARC 5923 Principles of Structures (3 Credit Hours)

Catalog Description: *Introduction to architectural structures including the principles and systems of structural materials that consider the spatial, structural, sustainable, and aesthetic qualities possible in the articulation of structure through architectural design.*

Course Goals & Objectives (list): Understanding the basic concepts in structural design. Understanding the basic structural forms and systems as related to architectural design and construction. Understanding the potentials and issues of basic structural systems through built examples. Developing the knowledge of building systems and interior construction. Understanding the basics of Statics with focus on the effects of loads on a structural member or a system. Developing the ability to interpret on the effects of loads and load combinations on behavior of structures. Producing student works that demonstrate that design solutions affect and are impacted by structural systems.

Student Performance Criteria:

B5. Structural Systems

Topical Outline: Introduction to Structural Concepts; Spatial Features of Structural Systems; Beams and Slabs; Cantilever Systems; Columns and Walls; Trusses; Cables; Arches; Frames; Vaults and Domes; Shells; Membranes; Loads; Stress; Forces and Movements; Stability and Equilibrium; Supports, Reactions and Restraints of Movements; Load Distribution; Introduction to Beam Behavior; Tributary Areas; Shear and Moment Diagrams for Beams.

Prerequisites: Graduate standing or consent of instructor, and enrollment in the M.Arch 3 program.

Textbooks:

The Structural Basis of Architecture by Bjorn Sandaker, Arne Eggen and Mark Cruvellier

Offered: Semester / Year

Fall / 2014

Spring / 2015

Fall / 2015

Faculty Assigned: (four semesters prior):

Fall / 2014 – Beeson

Spring / 2015 – Calvetti

Fall / 2015 – Beeson

ARC 5933 Structures (3 Credit Hours)

Catalog Description: *Continued introduction to architectural structures that considers the physical principles that govern classical statics and strength of materials, the graphical and mathematical design of structural systems and the role of structural articulation in the design of buildings.*

Course Goals & Objectives (list): Understanding the basics of structures, structural systems and structural mechanisms. Providing the students with a thorough knowledge about the importance of selecting the appropriate structural system and construction method. Forming the basis to explore innovative ideas within real world settings by means of structural theory, analysis and design. Developing the concept of load transfer mechanism and the effects of loads on structural systems. Improving the perception of the capacity of various structural members and structural materials. Exploring the well-known building examples with different high-rise and wide-span structural systems to inspire further research on structures in terms of sustainability and structural articulation considerations. Developing the ability to assess, select, and conceptually integrate structural systems, building envelope systems, environmental systems, life-safety systems, and building service systems into building design.

Student Performance Criteria:

B5. Structural Systems

Topical Outline:

Structural Design Loads and Methods; Design and Analysis of Trusses; Design and Analysis of Cables and Arches; Design and Analysis of Beams; Design and Analysis of Columns and Walls; Design and Analysis of Continuous Structures; General Design Principles of Membranes and Shells; General Design Strategies and Constructional Approaches.

Prerequisites: Graduate standing or consent of instructor, and enrollment in the M.Arch3 program.

Textbooks:

Structures by Daniel Schodek and Martin Bechthold

Offered: Semester / Year

Spring / 2015

Spring / 2016

Faculty Assigned: (four semesters prior):

Spring / 2015 - Beeson

Spring / 2016 - Beeson

ARC 5943 Principles of Environmental Systems (3 Credit Hours)

Catalog Description: *Environmentally responsive design of buildings and the natural and artificial systems that support them, including heating, ventilation, cooling, water, and waste management.*

Course Goals & Objectives (list): This course is intended to give the students both a fundamental and practical knowledge of building environmental systems and strategies in thermal, lighting, and acoustic conditions in buildings. It also provides a working knowledge of the interrelated building systems necessary to support human physiological benefits.

The course covers passive and active environmental system strategies in heating, ventilating and air-conditioning (HVAC) systems, daylighting, architectural lighting systems, and acoustic systems, building design performance, and human factors related to building indoor environmental quality.

Student Performance Criteria:

B6. Environmental Systems

Topical Outline:

The Sun and the Earth, The Sun and the Buildings, Unit Conversion & Basic Physics of Heat Transfer, Conduction (Building materials, Thermal mass), Convection and Radiation (Reflectance, Transmittance), Design of Heat Loss and Heat Gain, Thermal Comfort and Adaptive Comfort, Psychrometrics, Light, Color, Vision, Light and Daylighting, Visual Comfort, Architectural Lighting Systems, Climate Zones and Building, Renewable Energy (Photovoltaic Systems and Wind Turbines), Passive Heating and Cooling Systems, Mechanical Heating and Cooling Systems, Sound, Acoustics, Materials, Water and Buildings

Prerequisites: Graduate standing or consent of instructor, and enrollment in the M.Arch. 3 program.

Textbooks:

Norbert Lechner; *Heating, Cooling, Lighting: Sustainable Design Methods for Architects*, 4th Edition, 720 pages, September 2014

Stein, Reynolds, Grondzik, Kwok (2010). *Mechanical and Electrical Equipment for Buildings*, 11th Ed

Offered: Semester / Year

Fall / 2014

Summer / 2015

Fall / 2015

Faculty Assigned: (four semesters prior):

Fall / 2014 – Azari

Summer / 2015 – Rashed-Ali

Fall / 2015 – Suk

ARC 5953 Environmental Systems (3 Credit Hours)

Catalog Description: *Light and sound as design considerations in building design including the natural and artificial systems that support them. Course deals with illumination, electrical design, and acoustics.*

Course Goals & Objectives (list):

Environmental control systems have a major role in buildings' energy performance, environmental footprint, occupants' comfort and health, and life-cycle costs. It is therefore important that architects have sufficient understanding of these systems in order to properly integrate them into their design process. Students successfully completing this course may expect to:

- Understand the interactions between climate, architecture, and humans.
- Understand sustainability guidelines as related to design of buildings
- Be able to collect climatic information and translate it into architectural solutions for climatic adaptation.
- Understand major mechanisms of heat transfer in buildings
- Understand and apply the principles of thermal, lighting (natural and electric), and acoustical design in buildings and their interiors.
- Understand principles and determinants of indoor air quality inside the buildings.
- Be able to make early design decisions with regard to appropriate architectural forms and systems that meet heating, cooling, lighting, and acoustical privacy needs of the occupants by responding to climate and surrounding environment.
- Understand major types of mechanical environmental control systems and their distribution.
- Understand energy, security, building control systems, and building service systems.
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Student Performance Criteria:

- B6. Environmental Systems
- B9. Building Service Systems

Topical Outline:

Sustainable Design, Climate & Thermal Comfort, Solar Geometry, Passive Solar and Shading, Light, Color and Vision, Daylighting Design, Artificial Lighting, Heat Flow Concepts, Thermal Envelope, Design Heat Loss and Gain, Energy Use, Advanced Passive Heating and Cooling Systems, Photovoltaic Systems, HVAC and buildings services, Sound and Acoustics, Noise Control

Prerequisites: Graduate standing or consent of instructor, and enrollment in the M.Arch. 3 program.

Textbooks:

- Lechner, N. *Heating, Cooling, Lighting; Sustainable design methods for architects*. 4th Ed. Wiley
- Stein, Reynolds, Grondzik, Kwok. *Mechanical and Electrical Equipment for Buildings*, 12th Ed.

Offered: Semester / Year

- Spring / 2015
- Spring / 2016
- Summer / 2016

Faculty Assigned: (four semesters prior):

- Spring / 2015 – Azari
- Spring / 2016 – Azari
- Summer / 2016 – Rashed-Ali