

Part 4: Supplemental Information 1 – Course Descriptions

Number & Course Title: ARCH 210 (Required), Fundamentals of Design, 4 credit hours

Course Description:

Formal analysis and abstract design applied to spatial and formal constructs with specific attention towards order and proportion strategies. Focus on the process of design.

Course Goals & Objectives:

- To foster an understanding by the students into issues of perception as they relate to design.
- To introduce the student to the basic aspects of architectonic language employed in the delineation or creation of space.
- To develop the student's ability to apply basic color theory in the designed environment.
- To instill an appreciation of quality and appropriateness with regard to craft and execution as it relates to the development of design projects.
- To develop the student's ability to translate simple ideas into two and three dimensional environments.
- To encourage the student to find creative ways to express their ideas within the confines of specific guidelines and time constraints and explore materials and the idea of materiality.
- To develop the student's ability to understand the existence of alternative paths of exploration and be self critical
- To begin the development and use of design vocabulary (both written and oral) in discussions about studio work.
- To develop your abilities to work collaboratively as part of a team.
- Acquire skills, forge knowledge, and test intuition.
- Develop skills of observing and representing the physical and phenomenal environment.
- Develop skills working with line and tone and a dependency between drawing and design.
- Develop skills working with pen, graphite, and paper.
- Develop a work ethic which includes production, critical evaluation, iteration, and presentation skills and working appropriately in a digital environment

Student Performance Criteria:

A.1. Communication Skills
A.2. Design Thinking Skills
A.3. Visual Communication Skills
A.4. Technical Documentation

A.6. Fundamental Design Skills
A. 8. Ordering Systems Skills
B. 4. Site Design

Topical outline:

Design Projects	85%	Hyde Lecture summaries/Sketchbook	05%
Daily exercises	05%	Process and development	05%

Prerequisites:

ARCH/ARTP/JGEN/IDES/LARC/TXCD 140A, 140B, 141A, 141B, and 143.

Textbooks / Learning Resources:

None.

Offered:

Fall only, annually

Faculty assigned: (list all faculty assigned during the two academic years prior to the visit)

David Karle (F/T)
Peter Olshavsky (F/T)
Betsy Gabb (F/T)

Christopher Turner (adjunct)
Emily Andersen (adjunct)
Geoff Deold (adjunct)

Part 4: Supplemental Information 1 – Course Descriptions

Number & Course Title: ARCH 211 (Required), Fundamentals of Design, 5 credit hours

Course Description:

The fundamentals of material, structural and assembly tectonics in the design of inhabited environments.

Course Goals & Objectives:

- Meets deadlines, works consistently and takes initiative in learning skills
- Demonstrates ability to be self-critical while working individually and co-operatively
- Demonstrates ability to apply design principles to architectural environments
- Explore design options and evaluate them
- Maintain orderly record of design ideas and thinking
- Construct drawings from observation and for analysis, exploration and communication
- Develop basic relationships between site and design proposal
- Develop basic programmatic activities relative to human activities
- Understand the impact of representation, materials and methods on design proposal

Student Performance Criteria:

- A.1. Communication Skills
- A.2. Design Thinking Skills
- A.3. Visual Communication Skills
- A.6. Fundamental Design Skills
- A.7. Use of Precedents
- A.8. Ordering System Skills
- A.9. Historical Traditions and Global Culture
- B.4. Site Design
- B.9. Structural Systems
- C.1. Collaboration
- C.2. Human Behavior

Topical outline:

Presentation skills (40%)
Basic Design (55%)
Culture, People & History (05%)

Prerequisites:

ARCH 210

Textbooks / Learning Resources:

Francis Ching, *Design Drawing* (New York: Wiley, 2010).

Offered:

Spring only; annually

Faculty assigned:

Peter Olshavsky (F/T) / Benjamin Kroll (Adjunct) / Noah Ives (Adjunct)

Part 4: Supplemental Information 1 – Course Descriptions

Number & Course Title: ARCH 223 (Required), Computer Applications in Design, 3 credit hour

Course Description: Application of computer technology to architectural and interior design. Effective use of computer technology to aid investigation in design studios.

Course Goals & Objectives:

Students are expected to have acquired and will be evaluated on an:

- understanding of basic theories and concepts in areas of digital technology as it relates to architectural design and presentation.
- ability to start using digital and analogue techniques to assist in the design development at various stages of the design process.
- ability to use available digital technologies to generate various modes of architectural representation.

Student Performance Criteria:

A.3. Visual Communication Skills

A.7. Use of Precedents

A.8. Ordering Systems Skills

Topical outline:

Lectures:

Computer hardware, operating systems, data storage options. (10%)

Brief history of computation in design. (10%)

Basic theories, concepts and applications of digital technology. (10%)

Contemporary influences of computation on design. (20%)

Drawing conventions. (30%)

Graphic design basics. (20%)

Labs:

McNeel's Rhino / Adobe Photoshop: 2d CAD Conventions & 3d Modeling Basics (25%)

McNeel's Rhino / Adobe Illustrator & InDesign: Advanced 3d Modeling, Post-Processing: Rasters, Vectors, and Page Design (25%)

Autodesk's Revit / 3d Studio Max Rendering: Parametric and Single Building Modelling (50%)

Prerequisites:

Acceptance in the College of Architecture or permission.

Textbooks / Learning Resources:

Rhinoceros Functions and User Interface pg 65 -111, Chapter 2 – Rhinoceros Basic Operating Methods pg 113 – 161

Cheng, Ron K C, Inside Rhinoceros 4, Delmar Cengage Learning, 2008

Krygiel, Eddy; Reas, Phil; Vandezande, James; Mastering Revit Architecture 2011, Sybex, 2010

Edward R. Tufte, Envisioning information, Graphic Press 1990

Iain Fraser, Rod Henmi, Envisioning Architecture, An Analysis of Drawing, Van Nostrand Reinhold 1994

William Kirby Lockard, Drawing as a Means to Architecture, Van Nostrand Reinhold 1968

Callicott, Nick, Computer-Aided Manufacture in Architecture, Architectural Press, 2001

Schumacher, Patrik, Parametricism, pg 14 – 23 Leach, Neil (Editor), Digital Cities AD: Architectural Design, John Wiley & Sons, 2009

Silver, Mike, AD Programming Cultures: Architecture, Art and Science in the Age of Software Development, Academy Press, 2006

Offered:

Fall and Spring – annually; transitioned to DSGN 123 Computer Applications in Design

Faculty assigned:

Janghwan Cheon (F/T)/ Tim Hemsath (F/T)/ Steven Hardy (F/T)/ Nathan Miller (adjunct)

Part 4: Supplemental Information 1 – Course Descriptions

Number & Course Title: ARCH 240 (Required), Architecture History & Theory I, 3 credit hours

Course Description:

Survey of the development of architecture from pre-history through the Enlightenment, including diverse geographic traditions.

Course Goals & Objectives:

- Understand architectural terms and ideas
- Identify exemplary historical works and theories
- Identify multiple causes of events, historical processes as they relate to the history of architectural knowledge, ideas and methods
- Describe and analyze historical contexts of events, ideas and/or social and cultural practices
- Comprehend established scholarly methods in investigating and interpreting the past
- Frame research questions in the context of existing scholarly literature
- Locate, interpret and analyze primary and secondary sources along with standards of evidence relevant to research questions.
- Synthesize research skills to conceive and execute historical research and writing and graphic work
- Present research in a compelling written argument supported by visual evidence

Student Performance Criteria:

- | | |
|-----------------------------------------------|------------------------------------------|
| A.1. Communication Skills | A.10. Cultural Diversity |
| A.2. Design Thinking Skills | A.11. Applied Research |
| A.5. Investigative Skills | C.2. Human Behavior |
| A.7. Use of Precedents | C.8. Ethics and Professional Judgment |
| A.8. Ordering Systems Skills | C.9. Community and Social Responsibility |
| A.9. Historical Traditions and Global Culture | |

Topical outline:

- Research skills (25%)
- Communication skills (10%)
- Culture, Diversity, & History (65%)

Prerequisites:

none

Textbooks / Learning Resources:

Spiro Kostof, *A History of Architecture: Settings and Rituals* (New York: Oxford University Press, 1995).

Offered:

Fall only; annually

Faculty assigned:

Peter Olshavsky (F/T)

Part 4: Supplemental Information 1 – Course Descriptions

Number & Course Title:

ARCH 241 (Required), Architecture History & Theory II, 3 credit hours

Course Description:

Survey of the history and theory of architecture from the mid-eighteenth century to the present day.

Course Goals & Objectives:

- Understand architectural terms and ideas
- Identify exemplary historical works and theories
- Identify multiple causes of events, historical processes as they relate to the history of architectural knowledge, ideas and methods
- Describe and analyze historical contexts of events, ideas and/or social and cultural practices
- Comprehend established scholarly methods in investigating and interpreting the past
- Frame research questions in the context of existing scholarly literature
- Locate, interpret and analyze primary and secondary sources along with standards of evidence relevant to research questions.
- Synthesize research skills to conceive and execute historical research and writing
- Present research in a compelling written argument supported by visual evidence

Student Performance Criteria:

- A.1. Communication Skills
- A.5. Investigative Skills
- A.7. Use of Precedents
- A.8. Ordering Systems Skills
- A.9. Historical Traditions and Global Culture
- A.10. Cultural Diversity
- A.11. Applied Research
- C.2. Human Behavior
- C.8. Ethics and Professional Judgment
- C.9. Community and Social Responsibility

Topical outline:

Research skills (25%)

Communication skills (15%)

Culture, Diversity, & History (60%)

Prerequisites:

ARCH 240

Textbooks / Learning Resources:

Barry Bergdoll, *European Architecture: 1750 – 1890*

William Curtis, *Modern Architecture Since 1900*

Offered:

Spring only; annually

Faculty assigned:

Mark Hinchman (F/T) / Alireza Karbasioun (Adjunct)

Part 4: Supplemental Information 1 – Course Descriptions

Number & Course Title: ARCH 310 (Required), Studio: Systematic Approach - Process, 5 credit hour

Course Description:

Introducing the design process using normative and exploratory methods. Investigation, analysis, synthesis, development, presentation and critique of elementary design projects using digital and analog processes.

Course Goals & Objectives:

Students are expected to have acquired and will be evaluated on an:

- understanding of the objectives of each stage in the design process.
- understanding of the role of subjective and objective judgment in the design process.
- understanding of various means of representation, instrumentation and technique and their appropriate use in the documentation of design process
- understanding and ability to explore a variety of organizational, spatial, material, and representational techniques and processes suited to the design project
- ability to critically translate ideas into architectural form and space, advancing design intentions through an iterative process.
- ability to integrate human & social needs into architectural form making through responsive design concepts

Student Performance Criteria:

A.1. Communication Skills	A.8. Ordering Systems Skills
A.2. Design Thinking Skills	B.2. Accessibility
A.3. Visual Communication Skills	B.3. Sustainability
A.5. Investigative Skills	B.9. Structural Systems
A.6. Fundamental Design Skills	C.2. Human Behavior
A.7. Use of Precedents	C.3. Client Role in Architecture

Topical outline:

Specific project topics are set in each studio. There are typically 3 projects or project phases at roughly 25%, 25%, 50% of the time spent on each. This course aims to foster the design students' understanding of design process and apply it to architectural design projects with fairly simple programs. Students will develop an understanding and ability to translate an abstract idea into architectural objects and three dimensional spaces. Projects will focus on the integration of human needs into the design solution.

Prerequisites:

Admission to the BSD program and parallel ARCH 350.

Textbooks / Learning Resources:

Specific readings and learning resources relevant to design projects are set in each studio.

Offered:

Fall - annually

Faculty assigned:

Rumiko Handa (F/T)	Noah Ives (adjunct)
Steven Hardy (F/T)	Nate Krug (F/T)
Mark Hoistad (F/T)	Tom Laging (F/T)

Part 4: Supplemental Information 1 – Course Descriptions

Number & Course Title: Architecture 311 (Required), Ecological Context Studio, 5 credit hours

Course Description:

Fundamentals of architectural design. Continuation of problems centred on human needs. Intermediate projects emphasizing the influence of natural forces, site analysis and site culture

Course Goals & Objectives:

- Produce projects showing knowledge of design process, program and concept development and visual representation of a design problem with design intent.
- Apply communication strategies for development and final resolution in a given design problem.
- Develop students' ability to translate ideas into architectural form and space, advancing design intentions and continue to address the basic principles of building systems and the life safety issues as related to architectural design.
- Understand the reciprocal and interactive relationship between site and architecture. Use of outdoor program and spaces related to architectural ideas. Synthesize design work.
- Demonstrate students' ability to integrate site factors and influences, both physical and natural, into architectural form. Inventory and analysis leading to site selection and formulation of design intentions and demonstrate ability to apply basic structural and material systems
- Continue to develop the students' ability to understand and communicate both verbally and graphically related to the specific nature of their design solution responsive to context, human needs and intent and work efficiently independently and as group in design issue exploration

NAAB Performance Criteria:

A1. Speaking and Writing Skills, ability	B2. Accessibility, ability
A2. Design Thinking Skills, ability	B3. Sustainability, ability
A3. Visual Communication Skills, ability	B4. Site Design, ability
A5. Investigative Skills, ability	B12. Building Materials and Assemblies, understanding
A6. Fundamental Design Skills, ability	C1. Collaboration, ability
A7. Use of Precedents, ability	C2. Human Behavior, understanding
A8. Ordering Systems Skills, understanding	C6. Leadership, understanding

Topical Outline:

Research (site analysis/precedent/special topics, team and individual activity)	(30%)
Master Plan (urban design team activity)	(30%)
Architectural Design (building inside master plan, individual activity)	(40%)

Prereqs:

ARCH 310, 350

Textbooks:

none

Offered:

Spring Semester only, annually

Faculty Assigned:

David Karle (F/T) / Tim Hemsath (F/T)/ Mark Hoistad (F/T)

Part 4: Supplemental Information 1 – Course Descriptions

Number & Course Title: ARCH 331 (Required), Architectural Structures I, 3 credit hours

Course Description:

Analysis and design of structural members in wood, steel, and concrete with emphasis on slabs, joists, beams, girders, and connections. Comparative building systems.

Course Goals & Objectives:

Students are expected to be able to:

- Understand the structural design relationship with architecture
- Conceptualize options for structural systems within their designs
- Compare alternatives for different structural systems
- Perform approximate and simplified quantitative analysis for preliminary dimensioning of principal elements within a design

Student Performance Criteria:

B.9. Structural Systems

Topical outline:

Review of Statics (6.4%)

Wood Analysis and Design (35.5%)

Steel Analysis and Design (32.3%)

Concrete Analysis and Design (25.8%)

Prerequisites:

Engineering Mechanics ENGM 220, Statics

Engineering Mechanics ENGM 324, Strengths of Materials

Textbooks / Learning Resources:

Simplified Engineering for Architects and Builders: 11th Edition. James Ambrose and Patrick Tripeny. New Jersey: John Wiley & Sons, Inc., 2011.

Offered:

Fall 2008, Summer 2008, Fall 2009, Summer 2010, Fall 2010, Summer 2011, Fall 2011, Summer 2012, Fall 2012, Summer 2013, Fall 2013, Fall 2014

Faculty assigned:

Sharon Kuska (F/T)

Part 4: Supplemental Information 1 – Course Descriptions

Number & Course Title: ARCH 332 (Required), Architectural Structures II, 3 credit hours

Course Description:

Analysis and design of structural members in wood, steel and concrete with emphasis on columns, walls, soils, footings, trusses and construction. Comparative building designs.

Course Goals & Objectives:

Students will:

- Understand the structural design relationship with architecture
- Conceptualize options for structural systems within their designs
- Compare alternatives for different structural systems
- Perform approximate and simplified quantitative analysis for preliminary dimensioning of principal elements within a design

Student Performance Criteria:

B.9. Structural Systems

Topical outline:

Wood Analysis and Design (27.6%)

Steel Analysis and Design (20.7%)

Concrete Column, Wall and Footing Design (37.9%)

Truss Analysis and Design (13.8%)

Prerequisites:

ARCH 331 Architectural Structures I

Textbooks / Learning Resources:

Simplified Engineering for Architects and Builders: 11th Edition. James Ambrose and Patrick Tripeny. New Jersey: John Wiley & Sons, Inc., 2011.

Offered:

Spring and Summer 2009, Summer 2009, Spring 2010, Summer 2010, Spring 2011, Summer 2011, Spring 2012, Summer 2012, Spring 2013, Summer 2013, Spring 2014

Faculty assigned:

Sharon Kuska (F/T)

Part 4: Supplemental Information 1 – Course Descriptions

Number & Course Title: ARCH 333/CNST 305 (Required), Building Environmental Technical Systems I, 3 credit hours

Course Description:

Characteristics and performance of buildings with respect to thermal and psychrometric environment in buildings related to human comfort, heat gain/heat loss, ventilation, natural energy systems and sustainable design principles, and plumbing and life safety systems in the Built environment.

Course Goals & Objectives:

Upon completion of the course, students will possess an understanding of the principles of plumbing, fire protection, heating, ventilating, and air-conditioning that are necessary to make a safe, healthy and productive building environment. This includes learning how to effectively balance mechanical criteria such as thermal properties, installation cost, energy efficiency, human comfort, life safety, sustainability and other factors to produce a more holistic view of a building's performance.

Student Performance Criteria:

B3: Sustainability
B8: Environmental Systems
B10: Building Envelope Systems
B11: Building Service Systems
B12: Building Material and Assemblies

Topical outline:

Exams	(40%)
Homework, Pre-tests and quizzes	(20%)
Class Project	(40%)

Prerequisites:

Physics-151 or Physics 211 or CHEM-109, Math-106

Textbooks / Learning Resources:

Unknown

Offered:

Fall only; annually

Faculty assigned:

Tim Wentz (F/T)

Part 4: Supplemental Information 1 – Course Descriptions

Number & Course Title: ARCH 334/IDES334 (Required), Building Environmental Technical Systems II, 3 credit hours

Course Description:

Architectural lighting and acoustical systems of buildings. Fundamentals of light and vision, requirements for building lighting, sound and hearing fundamentals, room acoustics, and noise control.

Course Goals & Objectives:

This portion of the course discusses building lighting systems. Course objectives include:

- 1. To learn the fundamental aspects of light, vision, and lighting equipment as required to understand simple interior architectural lighting and acoustical systems.
- 2. To become familiar with and conversant in the language used in architectural lighting.
- 3. To develop an understanding of the concepts and design process used in architectural lighting.
- 4. To attain the competence to solve simple lighting problems.
- 5. To develop the ability to present and describe lighting system designs with clarity and professionalism.
- 6. To raise awareness of the role of lighting in one's life by sharpening observation skills and developing the ability to evaluate these systems using objective criteria.

Student Performance Criteria:

B3: Sustainability

B8: Environmental Systems

B11: Building Service Systems

B12: Building Material and Assemblies

Topical outline:

The final grade for the class will be based on the following:

Lighting Section – 50% of total grade, broken down as follows:

- Homework Assignments – 50% of Lighting grade
- Exam – 50% of Lighting grade

Acoustics Section – 50% of total grade, broken down as follows:

- Assignments and Projects – 50% of Acoustics grade
- Exams – 50% of Acoustics grade

Prerequisites:

Admission to the third year architecture or Interior Design Program.

Textbooks / Learning Resources:

Grondzik, W.T., Kwok, A.G., Stein, B., & Reynolds, J.S. (2010). Mechanical and Electrical Equipment for Buildings (Eleventh Edition). John Wiley & Sons: New York.

Offered:

Spring only; annually

Faculty assigned:

Dale Tiller (F/T - Lighting)/ Joonhee Lee (P/T - Acoustics)

Part 4: Supplemental Information 1 – Course Descriptions

Number & Course Title: ARCH 341 (Required), Architectural Theory, 3 credit hours

Course Description:

Architectural theory, defined as written accounts on what architecture should be and why. Comparison of diverse positions on particular issues that have persisted through history.

Course Goals & Objectives:

Students will:

- Develop and apply critical thinking skills in reading.
- Develop critical thinking skills in design, to be used to articulate their design intentions and to develop their design judgments.
- Acquire basic research methods and apply them in the following activities.
- Demonstrate all the above in the form of a final paper.

Student Performance Criteria:

A.1. Communication Skills
A.2. Design Thinking Skills
A.5. Investigative Skills
A.7. Use of Precedents;
A.9. Historical Traditions and Global Culture
A.10. Cultural Diversity
C.2. Human Behavior
C.8. Ethics and Professional Judgment
C.9. Community and Social Responsibility

Topical outline:

Reading: 7% x 7 = 49%
Critical Thinking: 7% x 3 = 21%
Research Methods: In-class exercise
Paper: 30%

Prerequisites:

ARCH240 and ARCH241

Textbooks / Learning Resources:

Turabian, K. *A Manual for Writers: of Term Papers, Theses, and Dissertations*. Chicago: U. of Chicago Press, 2007.

Booth, Wayne C., et al. *The Craft of Research*. Chicago: U. of Chicago Press, 2003.

Ballantyne, Andrew. *What Is Architecture?* London: Routledge, 2002.

Harries, Karsten. *The Ethical Function of Architecture*. Cambridge: The MIT Press, 1997.

Additional texts.

Offered:

Spring; Annually

Faculty assigned:

Rumiko Handa (F/T)

Part 4: Supplemental Information 1 – Course Descriptions

Number & Course Title: ARCH 350 (Required), Design Process, 3 credit hours

Course Description:

Introduction to the processes, methods, critical and analytical techniques used to develop architectural projects, explore procedures such as heuristic devices, diagramming, and emergent digital processes.

Course Goals & Objectives:

Students are expected to have acquired and will be evaluated on:

- an ability to identify the fundamental *constraints* of any architectural design problem.
- an understanding of the role of *generative ideas*.
- an ability to employ *heuristic devices* in generating multiple solutions for an architectural design problem.
- an ability to research, analyze and present the respective design process behind a distinguished architectural work.
- a heightened self-awareness as to how a young designer makes design decisions.

Student Performance Criteria:

A.1. Communication Skills
A.2. Design Thinking Skills
A.5. Investigative Skills
A.7. Use of Precedents
C.3. Client Role in Architecture
C.6. Leadership

Topical outline:

Research the respective “stories of process” behind distinguished architectural works (40%)
Objectively examine their own story of process behind their final project (60%)

Prerequisites:

Admission to the BSD program and co-enrollment in ARCH 310.

Textbooks / Learning Resources:

01. Dorst, Kees. *Understanding Design: 175 Reflections on Being a Designer. Second Edition.* BIS Publishers: Amsterdam, 2006.
02. Rowe, Peter. *Design Thinking.* MIT Press: Cambridge, 1987. p39-41 & 74-91.

Offered:

Fall; annually.

Faculty assigned:

Chris Ford (F/T), Fall 2007 – 2012
Steven Hardy (F/T), Fall 2013, Spring 2014

Part 4: Supplemental Information 1 – Course Descriptions

Number & Course Title: ARCH 360 (Required), Site Context Issues, 3 credit hours

Course Description:

Investigation of the interrelationship among the physical context, the various design professions concerned with site development and architectural ideas. Site analysis, selection, and development project.

Course Goals & Objectives:

1. Begin the process of heightening awareness of the nature, and potential influence context can have on design projects through the identification of potential natural, physical and human factors found there.
2. Introduce the purpose and the ability to engage in the process of data gathering, and analysis as an important first step leading toward site selection and the eventual development of designs for site interventions.
3. Introduce and develop the ability to manipulate topography and understand the implications of that manipulation. Develop awareness of the significance of the two way, interactive relationship between site and architecture.
4. Introduce the technical considerations involved in the development of systems associated with site development. Introduce the theories and historic development of landscape design.
5. Introduce and begin to develop the ability to employ various elements which make up the palette of the site designer. Introduce the various allied professions involved in the development of the site
6. Introduce the legal restrictions placed upon the land including types of ownership and land use regulation.

NAAB Performance Criteria:

A.1	Communication Skills	B.2	Accessibility
A.3	Visual Communication Skills	B.4	Site Design
A.5	Investigative Skills	C.1	Collaboration
A.9	Historical Traditions and Global Culture	C.2	Human behavior
A.11	Applied Research	C.7	Legal Responsibilities
B1	Pre- Design		

Topical Outline:

Projects (topo manipulation/site analysis/site design)	(45%)
Sketch Problems (technical skills)	(25%)
Lecture Assignments (research)	(10%)
Material Retention (mid term/final exams)	(20%)

Prereqs:

ARCH 310, 350

Textbooks:

Site Planning 3rd edition, by Kevin Lynch & Gary Hack, MIT Press

Offered:

Spring Semester only, annually

Faculty Assigned:

Peter Hind (F/T) 2009-13/ Mark Hoistad (F/T), 2014

Part 4: Supplemental Information 1 – Course Descriptions

Number & Course Title: ARCH 410 (Required), Design Studio: Tectonics, 5 credit hours

Course Description:

Architectural design strategies based on student designer's deliberate actions considering theoretical premises, existing contexts, site, environmental, ergonomic and structural demands, programmatic requirements, and construction methods.

Course Goals & Objectives:

- To apply their cumulative knowledge from all previous studios in the form a holistic, comprehensive design effort beyond Schematic Design.
- To specify a particular design intent and recognize the implications of culture and history in design.
- To develop an appreciation for conventional construction means and methods while simultaneously seeking out alternatives through research and/or design investigations.
- To develop a critical approach to material, structure and construction.
- To recognize the value of sustainable practices within a design solution.

Student Performance Criteria:

B6: Comprehensive Design

B10: Building Envelope Systems

B12: Building Materials and Assemblies

Topical outline:

Phase 1: Precedent Research (10%)

Phase 2: Site / Program selection and development (20%)

Phase 3: Design Development Drawing set (60%)

Attendance, Participation, Qs for Disc. (10%)

Prerequisites:

ARCH 311, 360

Textbooks / Learning Resources:

The Architect's Studio Companion, Edward Allen and Joseph Lano, Latest edition;

Offered:

Fall only; annually

Faculty assigned:

David Karle (F/T), Peter Hind (F/T), Chris Ford (F/T), Mark Bacon (adjunct)

Part 4: Supplemental Information 1 – Course Descriptions

Number & Course Title: Architecture 411 (Required), Urbanism Studio, 5 credit hours

Course Description:

Intermediate architectural design studio focusing on the urban environment and processes of urban design. Urban spaces and their organization versus built form.

Course Goals & Objectives:

1. Build on the ability to research and graphically assess site conditions and their influence on a given design project using the urban environment as the setting for this activity.
2. Demonstrate the ability to generate design solutions based on the knowledge gained through case study research
3. Continue the development of the ability to define and pursue an appropriate design process for the given design problem
4. Continue the development of the ability to translate ideas into architectural form and space. In particular, this will involve working in different forms of urbanism and generating urban solutions.
5. Achieve a further understanding of how human and ecological needs impact the design process
6. Demonstrate the ability to develop an architectural design after critically considering a given program within the context of one's design intent and the context of the project
7. Demonstrate an understanding of how to acknowledge and manage the various systems that make up the built and natural environment through a design solution
8. Demonstrate the ability to communicate the context for a design problem, design intentions in relation to this context, and the nature of their designed solution in response to this context and design intent using various platforms of communication.

NAAB Performance Criteria:

A.1 Communication Skills	B.1 Pre- Design
A.2 Design Thinking Skills	B.3 Sustainability
A.3 Visual Communication Skills	B.4 Site Design
A.5 Investigative Skills	C.1 Collaboration
A.7 Use of Precedents	C.8 Ethics and Professional Judgment
A.11 Applied Research	C.9 Community and Social Responsibility

Topical Outline:

Research (site analysis/precedent/special topics, team and individual activity)	(30%)
Master Plan (urban design team activity)	(30%)
Architectural Design (building inside master plan, individual activity)	(40%)

Prereqs:

ARCH 410, 430

Textbooks:

none

Offered:

Spring Semester only, annually

Faculty Assigned:

Tom Laging (F/T) / Tim Hemsath (F/T)/ Mark Hoistad (F/T)

Part 4: Supplemental Information 1 – Course Descriptions

Number & Course Title: ARCH 430 (Required), Technical Applications, 3 credit hours

Course Description:

Integrative study of building structural, building, and environmental technology systems within the context of ARCH 410. Emphasis on mechanical systems, assemblages, and project evolution.

Course Goals & Objectives:

1. Study the impact of systems, structure, construction, technologies of making and tectonic expression on architectural design and establish a reflexive relationship of idea and technique.
2. Work both at the strategic level of program and the tactical level of techniques, continue to address architectural ethics and life safety issues as defined in building codes and design practice and develop a basic understanding of design sustainability on issues and influence.
3. Integrative study of: Building construction assemblies; including the International Building Code, material selection and performance, structural and HVAC systems selection in schematic design; and building envelope design, materials, methods and detailing (tectonics).

NAAB Performance Criteria:

A.1: Communication Skills	B.5: Life Safety
A.3: Visual Communication Skills	B.8: Environmental Systems
A.4: Technical Documentation	B.9: Structural Systems
A.5: Investigative Skills	B.10: Building Envelope Systems
B.2: Accessibility	B.11: Building Service Systems
B.3: Sustainability	B.12: Building Materials and Assemblies

Topical Outline:

5.00%	A#1	<i>Individual effort</i>	10.00%	P2 - Block Design	<i>Individual effort</i>
5.00%	A#2	<i>Individual effort</i>	15.00%	P3 - Section Model	<i>Individual effort</i>
5.00%	A#3	<i>Individual effort</i>	20.00%	P4 - Drawing Set	<i>Individual effort</i>
5.00%	A#4	<i>Individual effort</i>	15.00%	Quizzes	<i>Individual effort</i>
10.00%	P1 - CODE Review		10.00%	Final Exam	<i>Individual effort</i>

Prereqs:

Arch 332, 333, 360

Textbooks: *one of the noted textbooks is selected each time the course is offered

*Materials, Structures, Standards, ISBN 1-59253-193-8 by Julia Mcmorrough

*Fundamentals of Building Construction: Materials and Methods Edward Allen, Joseph Iano; Wiley, 2008.
Building Systems Integration for Enhanced Environmental Performance Shahin Vassigh and Jason Chandler; J. Ross Publishing, 2011.

*Building Construction, Principles, Mehata, Scarborough, Arm Priest; Pearson; Prentice-hall, 2008.

Offered:

Fall Semester only, annually

Faculty Assigned:

Tim Hemsath (F/T)/ Martin Despang/ William Borner (Emeritus)

Part 4: Supplemental Information 1 – Course Descriptions

Number & Course Title: ARCH 4/5/861 LARC 461 (Required), Urbanism, 3 credit hours

Course Description:

Issues of contemporary urbanism and the processes of urban design. Experiential nature of cities, role of public policy, ideology, genesis and development of urban form and space.

Course Goals & Objectives:

- Provide historical and theoretical background on contemporary forms of American urbanization.
- Prepare students for graduate level thinking through the development of readings, writings visuals, and verbal communication.
- Introduce new strategies for seeing, analyzing, and thinking systematically about urbanization in the United States.
- Provide students with on-site experience in dense urban context. (Field trip coordinated with parallel Arch/Larc 411 design studio)

Student Performance Criteria:

A2 Design Thinking Skills

A5 Investigative Skills

C2 Human Behavior

C8 Ethics and Professionalism

C9 Community and Social Responsibility

Topical outline:

Project 1: Timeline (15%)

Project 2: Urbanism types (40%)

Online Responses: (20%)

Final Exam: (25%)

Prerequisites:

For ARCH461: ARCH410 and 430; For LARC LARC/NRES 487 and LARC 410

Textbooks / Learning Resources:

Varies. Faculty provide specific readings from various sources.

Offered:

Spring only; annually

Faculty assigned:

David Karle (F/T)

Part 4: Supplemental Information 1 – Course Descriptions

Number & Course Title: ARCH 510 / 610 (Optional), Advanced Architectural Design I / III : 5 credit hours

Course Description:

Vertically integrated 5th & 6th year design studio. Option studio structured around a topical theme proposed by faculty.

Course Goals & Objectives:

- engage in the research, analysis, and documentation of topics within design research theme
- construct a project program by identifying relevant quantitative and qualitative parameters
- demonstrate the process of translating abstract architectural ideas into physical form
- explore and question the manifestation of the proposed design, the complex forces that shape it, and its consequential effects
- demonstrate advanced facility for managing complex systems that make up the comprehensive designed environment
- sharpen capacity for critical, projective, and conjectural thinking
- pursue a rigorous architectural project with a degree of independence within the structure of the studio
- clearly communicate the content and intentions of the design proposal
- produce work which is the best effort of each individual

Student Performance Criteria:

A.2. Design Thinking Skills
A.5. Investigative Skills
A.7. Use of Precedents
A.8. Ordering Systems Skills
A.9. Historical Traditions and Global Culture
A.11. Applied Research

Topical outline:

- Research, Analysis, & Documentation
- Program Generation
- Context Analysis
- Ideation / Prototyping
- Testing / Evaluation
- Attendance, Participation, Qs for Disc.

Prerequisites:

5th year standing, professional program.

Textbooks / Learning Resources:

Determined by specific studio.

Offered:

Fall only; annually

Faculty assigned:

- Varies -

Part 4: Supplemental Information 1 – Course Descriptions

Number & Course Title: ARCH 511 / 611 (Optional), Advanced Architectural Design II / IV : 5 credit hours

Course Description:

Vertically integrated 5th & 6th year design studio. Option studio structured around a topical theme proposed by faculty.

Course Goals & Objectives:

- engage in the research, analysis, and documentation of topics within design research theme
- construct a project program by identifying relevant quantitative and qualitative parameters
- demonstrate the process of translating abstract architectural ideas into physical form
- explore and question the manifestation of the proposed design, the complex forces that shape it, and its consequential effects
- demonstrate advanced facility for managing complex systems that make up the comprehensive designed environment
- sharpen capacity for critical, projective, and conjectural thinking
- pursue a rigorous architectural project with a degree of independence within the structure of the studio
- clearly communicate the content and intentions of the design proposal
- produce work which is the best effort of each individual

Student Performance Criteria:

A.2. Design Thinking Skills
A.5. Investigative Skills
A.7. Use of Precedents
A.8. Ordering Systems Skills
A.9. Historical Traditions and Global Culture
A.11. Applied Research

Topical outline:

- Research, Analysis, & Documentation
- Program Generation
- Context Analysis
- Ideation / Prototyping
- Testing / Evaluation
- Attendance, Participation, Qs for Disc.

Prerequisites:

6th year standing, professional program.

Textbooks / Learning Resources:

Determined by specific studio.

Offered:

Spring only; annually

Faculty assigned:

- Varies -

Part 4: Supplemental Information 1 – Course Descriptions

Number & Course Title: ARCH 613 (Required), Design Thesis, 6 credit hours each

Course Description:

Advanced architectural design. The first part of a year-long design project initiated by the student and developed in conjunction with a faculty mentor.

Course Goals & Objectives:

Students are expected to:

- be rigorous independent investigators.
- identify and frame a subject concerning Architecture that is both personally meaningful and professionally relevant.
- research the identified subject with dedicated inquiry.
- phrase a specific Design Thesis question.
- develop a discursive and arguable position regarding the appropriateness of their Design Thesis response.
- enhance their respective verbal, written, visual and design skills during the pursuit of their respective Design Thesis response.
- maintain both creative and intellectual engagement that is proportional for a six credit hour ARCH course.

Student Performance Criteria:

A1. Communication Skills
A2. Design Thinking Skills
A3. Visual Communication Skills
A5. Investigative Skills
A6. Fundamental Design Skills
A7. Use of Precedents
A8. Ordering Systems Skills
C2. Human Behavior

Topical outline:

Research and Problem Definition	(40%)	Design investigations	(60%)
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Prerequisites:

6th year standing in the Master of Architecture Program, and a Design Thesis proposal submitted to and approved by both your respective Faculty Mentor, and the ARCH Professional Program Committee (PPC).

Textbooks / Learning Resources:

Booth, Wayne C and others. *The Craft of Research*. 3rd Edition. University of Chicago Press: Chicago, 2008.

Offered:

ARCH613: Fall only, annually
ARCH614: Spring only, annually

Faculty assigned:

Professional Program Committee Chair OR Architecture Program Chair

Part 4: Supplemental Information 1 – Course Descriptions

Number & Course Title: ARCH 614 (Required), Design Thesis, 6 credit hours each

Course Description:

Advanced architectural design. The second part of a year-long design project initiated by the student under the supervision and guidance of a faculty mentor.

Course Goals & Objectives:

Students are expected to:

- be rigorous independent investigators.
- identify and frame a subject concerning Architecture that is both personally meaningful and professionally relevant.
- research the identified subject with dedicated inquiry.
- phrase a specific Design Thesis question.
- develop a discursive and arguable position regarding the appropriateness of their Design Thesis response.
- enhance their respective verbal, written, visual and design skills during the pursuit of their respective Design Thesis response.
- maintain both creative and intellectual engagement that is proportional for a six credit hour ARCH course.

Student Performance Criteria:

A1. Communication Skills
A2. Design Thinking Skills
A3. Visual Communication Skills
A5. Investigative Skills
A6. Fundamental Design Skills
A7. Use of Precedents
A8. Ordering Systems Skills
C2. Human Behavior

Topical outline:

Design investigations	75%	Thesis publication	25%
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Prerequisites:

- 6th year standing in the Master of Architecture Program, and
- A Design Thesis proposal submitted to and approved by both your respective Faculty Mentor, and the ARCH Professional Program Committee (PPC).

Textbooks / Learning Resources:

Booth, Wayne C and others. *The Craft of Research*. 3rd Edition. University of Chicago Press: Chicago, 2008.

Offered:

ARCH614: Spring only, annually

Faculty assigned:

Professional Program Committee Chair or Architecture Program Chair

Part 4: Supplemental Information 1 – Course Descriptions

Number & Course Title: ARCH 6/880 (Required), Professional Practice, 3 credit hours

Course Description:

Build student skills and experience in collaboration, ethical business management, and leadership in the community to prepare students for professional opportunities and success following graduation.

Course Goals & Objectives:

- To define the role and function of the professions of the College of Architecture in today's and tomorrow's professions and society.
- To explore a project's path through the office from marketing, contracts, planning, design and contractual documents through to implementation, construction and facilities management.
- To define ethical business as well as management principles of the professional office, project organization, personal and professional development as outlined in the Ethical Standards and Accreditation Criteria of each of the professions of architecture, landscape Architecture and community and regional planning.

Student Performance Criteria:

N/A

Topical outline:

Project A; Collaborative marketing proposal (20%)

Project B: Individual contract proposal (20%)

Project C: Collaborative cross professional discussions (20%)

Project D: Research on firm/profession structure and management (20%)

Occasional Quizzes (20%)

Prerequisites:

Admission to the M.Arch program

Textbooks / Learning Resources:

Various research articles required

Offered:

Fall only; annually

Faculty assigned:

Wayne Drummond (F/T)

Part 4: Supplemental Information 1 – Course Descriptions

Number & Course Title: ARCH 6/883 (Required), Architectural Programming, 3 credit hours

Course Description:

Lecture/seminar/research studying architectural programming and building evaluation methods.

Course Goals & Objectives:

- To learn about how architectural programming evolved and how it may develop in the future.
- To learn about definitions of programming and building evaluation, their usefulness in professional practice.
- To learn about techniques of conducting programming and building evaluation studies.
- To explore potentials and limitations of programming and building evaluation in future professional practice.

Student Performance Criteria:

A.1. Communication Skills
A.2. Design Thinking Skills
A.5. Investigative Skills
A.7. Use of Precedents
A.11. Applied Research
B.1. Pre-Design
C.2. Human Behavior
C.3. Client Role in Architecture

Topical outline:

WHY? (20%)
WHAT? (20%)
WHERE? (20%)
WHO? (20%)
HOW? (20%)

Prerequisites:

Admission to the fifth-year.

Textbooks / Learning Resources:

Duerk, D. (1993) Architectural Programming: Informational Management for Design, Van Nostrand Reinhold, New York.
Rybczynski, Witold, Overexposed, Architect, April 2013.
Stein, Jay M. and Spreckelmeyer, Kent F., Classic Readings in Architecture, WCB McGraw-Hill, Boston, 1999.

Offered:

Fall only; annually

Faculty assigned

Nathan Krug (F/T)

Part 4: Supplemental Information 1 – Course Descriptions

Number & Course Title: ARCH 107 (Elective), Sustainability Basics and the Built Environment, 3 credit hours

Course Description:

Introduction to the fundamentals, principles and current assessments relative to responsible, sustainable design as applied to the built environment.

Course Goals & Objectives:

- To create an environmental awareness through exploration of issues involving the interconnectivity of nature and humanity
- To develop an increased understanding of the principles and practices of sustainable design and development
- To foster the role of the student in contributing toward greater environmental and socially responsive design and living

This course is also satisfies ACE 8 (Achievement Centered Education Goal) of the University of Nebraska's general education program: Explain ethical principles, civics, and stewardship, and their importance to society.

Student Performance Criteria:

- B.3. Sustainability
- C.8. Ethics and Professional Judgment
- C.9. Community and Social Responsibility

Topical outline:

- Stuff - Products (27%)
- Shelter (46%)
- Cities (19%)
- Planet (8%)

Prerequisites:

none

Textbooks / Learning Resources:

Worldchanging: A User's Guide for the 21st Century. Ed. by Alex Steffen. New York: Abrams, 2010.

Offered:

Spring 2009, Fall 2010, Fall 2011, Spring 2013, Fall 2013

Faculty assigned:

Sharon Kuska (F/T)

Part 4: Supplemental Information 1 – Course Descriptions

Number & Course Title: ARCH 3/527 (Elective), Parametric Modeling for Design, 1 credit hour

Course Description:

Introduction to parametric and related basic computational concepts for design with explorations of specific techniques and parametric modeling software.

Course Goals & Objectives:

Students are expected to have acquired and will be evaluated on an:

- awareness of the relevance of parametric thinking to design culture
- knowledge of specific uses of parametric 'modeling' applications at various design phases
- understanding of parametric and related basic computational concepts and techniques for design
- ability to use relevant parametric modeling software to construct basic models and routines

Student Performance Criteria:

None.

Topical outline:

20% Lecture: Parametric/Computational Thinking; from spreadsheet to specific modeling techniques.

Lab: Excell; examples, McNeel's Grasshopper; concepts, interface, basic components and connections.

20% Lecture: Parameters & Scenario Modeling

Lab: McNeel's Grasshopper; Intermediate Components & Basic Definitions

20% Lecture: Data Modeling

Lab: McNeel's Grasshopper; Advanced Components, Data Management, and Functions

20% Lecture: Definition Prototypes

Lab: McNeel's Grasshopper; Project Workshop

20% Lecture: Introduction to Scripting Interface

Lab: McNeel's Grasshopper; Project Workshop

Prerequisites:

DSGN 123 Computer Applications for Design

Textbooks / Learning Resources:

Khabazi, Mohamad. Algorithmic Modeling with Grasshopper.

Payne, Andrew. Grasshopper Primer 2nd Edition, for version .0.5.0099

Hardy, Steven. The Grasshopper Parametric v1.0, v2.0, and v3.0

Sung, Woo Jae. Rhino Grasshopper Tutorial 1 - 3

<http://grasshopper.rhino3d.com/>

<http://designreform.net/tag/grasshopper/>

Offered:

Fall and Spring – annually; first offered Fall 2014

Faculty assigned:

Steven Hardy (F/T)

Part 4: Supplemental Information 1 – Course Descriptions

Number & Course Title: ARCH 4/5/817 (Elective), Product Design, 3 credit hours

Course Description:

The Product Design course involves the research, design, and construction of a particular product selected by the student.

Course Goals & Objectives:

- Students will research the history of a particular product and understand how and why it was created along with studying how the certain product has evolved over time up until present day.
- Students will use their research to help lay the foundation for their design process.
- Students will work on multiple iterations for their product and they will go through a schematic design, design development, full size mock up/construction document phases and a 7 week fabrication phase to build their final product.

Student Performance Criteria:

n/a

Topical outline:

Presentation skills (20%)

Basic Design (20%)

Construction of Product (60%)

Prerequisites:

none

Textbooks / Learning Resources:

Practical Design Solutions and Strategies. Eds. Fine Woodworking. The Taunton Press, 2000.

Furniture Design. Jim Postell John Wiley & Sons, Inc, 2007

Offered: (semester and year)

Fall only; annually

Faculty assigned: (list all faculty assigned during the two academic years prior to the visit)

Tom Allisma (F/T)

Andy Schultz (Shop Director)

Part 4: Supplemental Information 1 – Course Descriptions

Number & Course Title: Arch 4/5/824 (elective), Advanced Architectural Drawing, 2 credit hours

Course Description:

Advanced work in architectural drawing. Discourse about various drawing problems encountered in design process and practice.

Course Goals & Objectives:

- Students will be able to use a variety of color and transparent media to advanced architectural and design ideas.
- Students will develop skills in rapid studio and field sketch techniques.
- Students will be able to explore design themes through an iterative or serial process.

Student Performance Criteria:

- A. 2. Design Thinking Skills
- A. 3. Visual Communication Skills
- A. 6. Fundamental Design Skills

Topical outline:

- Observational drawing review and elaboration (25%)
- Architectural perspective construction and elaboration (25%)
- Media techniques (20%)
- Student generated drawing projects (25%)

Prerequisites:

Acceptance into professional or permission.

Textbooks / Learning Resources:

None

Offered:

Fall or Spring once; annually

Faculty assigned:

Tom Laging (F/T)

Part 4: Supplemental Information 1 – Course Descriptions

Number & Course Title: ARCH 4/5/835 (Elective), Advanced Lighting Design, 3 credit hours

Course Description:

The translation of physical measurements of sensory stimuli into architectural-spatial relationships with respect to both natural and artificial illumination

Course Goals & Objectives:

- To demonstrate the ability to address the emotional, psychological, and physical influences lighting provides in spatial development.
- To enable one to translate the physical measurements of sensory stimuli into architectural / spatial relationships.
- To further develop and refine design skills in the realm of spatial definition.
- To broaden the student's understanding of:
 - Light as a design medium and tool.
 - The importance of spatial quality and development.
 - Modeling as a design aid and communicator of intentions.

Student Performance Criteria:

- A.1. Communication Skills
- A.2. Design Thinking Skills
- A.3. Visual Communication Skills
- A.5. Investigative Skills
- C.1. Collaboration

Topical outline:

- Objectives (5%)
- Basics I, the eye.vision.perception.color (10%)
- Generation, natural and artificial (15%)
- Light for People (15%)
- Basics II, properties.controls.measurement (10%)
- Light and Form (15%)
- Focal Illumination (15%)
- Systems Design (15%)

Prerequisites:

Arch 333 or by permission

Learning Resources:

Concepts in Architectural Lighting by Egan.
Architectural Lighting Design by Steffy.

Offered:

Spring only, annually.

Faculty assigned:

Nathan Krug (F/T)

Part 4: Supplemental Information 1 – Course Descriptions

Number & Course Title: ARCH 466 (Elective), Community Design Center, 3-6 credit hours

Course Description:

Community-oriented design studio. Connecting students with local not-for-profit agencies to design, implement, and build small scale architecture and installations to further the mission of selected community partners.

Course Goals & Objectives:

- Students will demonstrate the process of translating abstract and theoretical architectural ideas into physical form.
- Students will engage in a community process of design and input on a “real” project with a budget and client.
- Students will demonstrate a facility to acknowledge and manage the various systems - the built and natural environment – as they related to full scale construction.
- Students will demonstrate the ability to pursue an architectural project with a degree of independence, initiative, and rigor within the structure of the studio and group production.
- Students will produce a piece of work that serves as an expression of the best effort of each individual and the collective group.
- Students will engage in critical discourse in theory, design, fabrication, and practice.
- Students will demonstrate willingness to respond to criticism, to give and receive critical input from peers and professionals, and to engage in open dialog regarding design.
- Students will demonstrate integration of building, life-safety, and accessibility codes in various stages of project design.

Student Performance Criteria:

A.1. Communication Skills
A.3. Visual Communication Skills
A.4. Technical Documentation Skills
A.6. Fundamental Design Skills
B.1. Pre-Design
B.2. Accessibility
C.1. Collaboration
C.3. Client Role in Architecture
C.6. Leadership
C.9. Community and Social Responsibility

Topical outline:

Client/partner interaction and interview (20%)
Design Research, precedent study, and analysis (15%)

Design (35%)
Building and implementation (30%)

Prerequisites:

none

Textbooks / Learning Resources:

Various – project dependent.

Offered:

Fall Semester: 2007,2008,2009,2010

Faculty assigned:

Peter Hind (F/T)

Part 4: Supplemental Information 1 – Course Descriptions

Number & Course Title: ARCH 4/5/881, IDES 481 (Elective), Women in Design, 3 credit hours

Course Description:

Study of contributions by women to the built design professions. Work, roles and values, and their impact on the issues currently held by the profession.

Course Goals & Objectives:

- Expand awareness of the contributions women have made and continue to make to the field of architecture and interior design
- Demonstrate an understanding of the work of significant women in design
- Develop and actualize critical perspectives relative to gender
- Identify feminist perspective and how it affects the workplace

Student Performance Criteria:

A.9. Historical Traditions and Global Culture

A.10. Cultural Diversity

Topical outline:

Historical influences of women on the design profession (58%)

Current female leaders in the design arena (31%)

Future progress of women within the professional and academic settings (11%)

Prerequisites:

none

Textbooks / Learning Resources:

A number of selected readings from numerous internet and library sources including:

Architecture: A Place for Women. Ed. by Ellen Perry Berkeley and Matilda McQuaid. Blue Ridge Summit, PA: Smithsonian Institution Press, 1989.

The Architect: Reconstructing Her Practice. Ed. by Francesca Hughes. Cambridge, MA: Massachusetts Institute of Technology, 1996.

Offered:

Spring 2010, Spring 2011, Spring 2012, Fall 2012, Spring 2014

Faculty assigned:

Sharon Kuska (F/T)

Part 4: Supplemental Information 1 – Course Descriptions

Number & Course Title: ARCH 497 (Elective), Architectural Imaginary: Stories, Technology & Culture, 3 credit hours

Course Description:

Architecture history and theory emphasizing issues related to the architectural imaginary, specifically stories, technology and culture in the context of late-modern society, 1969-2000.

Course Goals & Objectives:

- Analyze and understand works (texts, drawings, buildings, etc) within the world of the work
- Analyze and understand works within a broader tradition of architecture
- Identify multiple causes of events and historical processes
- Relate works to other fields of cultural knowledge
- Comprehend established scholarly methods in investigating and interpreting the past
- Locate, interpret and analyze primary and secondary sources relevant to research questions
- Frame research question in the context of existing scholarly literature
- Synthesize research skills to conceive and execute historical research and to present cogent written argument with visual evidence
- Discuss salience of architectural positions (and biases) in relation to creativity and society
- Translate historical and theoretical research on the architectural imaginary into a poetic work

Student Performance Criteria:

- A.1. Communication Skills
- A.2. Design Thinking Skills
- A.5. Investigative Skills
- A.7. Use of Precedents
- A.9. Historical Traditions and Global Culture
- A.10. Cultural Diversity
- C.2. Human Behavior
- C.8. Ethics and Professional Judgment
- C.9. Community and Social Responsibility

Topical outline:

Communication skills (20%)
Research skills (20%)
Culture, Diversity, & History (60%)

Prerequisites:

none

Textbooks / Learning Resources:

Each student reads & presents a different primary source from the late-modern period (see syllabus)

Offered:

Fall 2013; Spring 2014

Faculty assigned:

Peter Olshavsky (F/T)

Part 4: Supplemental Information 1 – Course Descriptions

Number & Course Title: ARCH 4/5/897 (Elective), Architectural Representations: Theory and Application, 3 credit hours

Course Description:

Explores architectural practice relative to representational communication, investigates the impact of tangential techniques, resources focus on issues of perception and projection through seminar and laboratory.

Course Goals & Objectives:

- Development of critical viewpoint on architectural representation
- Study of historical and contemporary use of architectural representation
- Explore the translation of intention and bias into architectural representation
- Develop the ability to engage critical discussion in response to required readings
- Demonstrate the ability to lead a critical discussion of required readings
- Complete a focused series of exercises exploring representational typology

Student Performance Criteria:

A.1 Communication Skills
A.2 Design Thinking Skills
A.3 Visual Communication Skills
A.5 Investigative Skills
A.7 Use of Precedents

Topical outline:

Exploratory representations (45%)
Response statements (15%)
Discussion group leadership (10%)

Prerequisites:

ARCH311, or by permission

Textbooks / Learning Resources:

none

Offered:

Fall 2011, Spring 2013

Faculty assigned:

Brian M. Kelly (F/T)

Part 4: Supplemental Information 1 – Course Descriptions

Number & Course Title: ARCH 4/597 (elective), BIM for Design – Conceptual Modeling and Analysis , 1 credit hour

Course Description:

Further exploration of Building Information Modeling (BIM) and its application for conceptual design. Use of BIM for modeling and analysis.

Course Goals & Objectives:

Students are expected to have acquired and will be evaluated on an:

- understanding of basic concepts for using BIM for conceptual design
- ability to apply BIM and Analysis concepts in early stages of design
- ability to use available BIM technologies to generate various modes of architectural representation

Student Performance Criteria:

None.

Topical outline:

Lecture – Beyond Documentation: Conceptual and Analytical BIM Approaches (10%)

Lab – Defining Parametric Rigs – Autodesk Revit; Constraint modeling, form creation (30%)

Lab – Parametric Form Control & Iteration – Autodesk Revit; Instance parameter control, type parameter control, creating form iterations (20%)

Lab – Surface Development and Patterning – Autodesk Revit; Creating pattern based BIM elements and advanced parametric elements. (20%)

Lab – Conceptual Analysis. Autodesk Vasari - Performing solar and wind analysis on conceptual models. (20%)

Prerequisites:

Admission to Architecture Program

Textbooks / Learning Resources:

Corser, Robert, Ed. *Fabricating Architecture: Selected Readings in Digital Design and Manufacturing*, Princeton Architectural Press (2010)

Kensek, Karen, Ed. *Building Information Modeling: BIM in Current and Future Practice*, John Wiley & Sons (2014)

Schodek, Daniel, et al., *Digital Design and Manufacturing: CAD/CAM Applications in Architecture and Design*, John Wiley & Sons (2005)

Offered:

Fall – annually; first offered Spring 2013

Faculty assigned:

Nathan Miller (adjunct)

Part 4: Supplemental Information 1 – Course Descriptions

Number & Course Title: ARCH 4/597 (Elective), Digital Ceramics, 1 credit hours

Course Description:

This production-intensive workshop involves the design and fabrication of a ceramic screen, combining computational tools and physical craftsmanship.

Course Goals & Objectives:

- Explore concepts of modularity and aggregation
- Learn production techniques of 3d printing, plaster mold making and slip casting
- Develop precision of digital form-making

Student Performance Criteria:

Projects are graded based on-

Performative qualities of screen system (50%)

Craft of unit design and final screen system (25%)

Quantity/completion of design (25%)

Documentation and final presentation (25%)

Topical outline:

Designing a module with digital tools (20%)

3d printing or milling a template (15%)

Creating a plaster mold (20%)

Casting clay pieces (20%)

Firing, glazing and assembly (15%)

Final Presentation (10%)

Prerequisites:

Upper level students, or by consent

Textbooks / Learning Resources:

Gonzalez, Manuel. Ceramic Tiles: Production Process, types and fixing techniques, Molding, Assembling, Designing Ceramics in Architecture. ASCER, Barcelona, 2006.

Notkin, Richard. The Technology and Philosophy of Creative Slip Casting. John Michael Kohler Arts Centre, Sheboygan, 1978.

Paya, Mila. Ceramic Prototypes: New Applications, Molding, Assembling, Designing Ceramics in Architecture. ASCER, Barcelona, 2006.

Vendrell, Toni. Relationships between Ceramics and Architecture, Molding, Assembling, Designing Ceramics in Architecture. ASCER, Barcelona, 2006.

Offered:

Fall only; annually

Faculty assigned

Noah Ives (adjunct)

Part 4: Supplemental Information 1 – Course Descriptions

Number & Course Title: ARCH 497 (Elective), Paris: Stories in History & Theory of Design, 3 credit hours

Course Description:

Three week seminar in Paris, France that explores design history through the stories that places, people and artefacts tell.

Course Goals & Objectives:

- Experience exemplary design works in the fullness of their context
- Analyze and understand works (text, drawings, building, etc) within the world of the work
- Identify multiple causes of events and historical processes
- Relate works to other fields of cultural knowledge and social contexts
- Locate, interpret and analyze primary and secondary sources relevant to research questions
- Synthesize research skills to conceive and execute historical research for on-site presentation
- Synthesize experiences to engage the city and its stories in a creative way

Student Performance Criteria:

- A.1. Communication Skills
- A.5. Investigative Skills
- A.7. Use of Precedents
- A.9. Historical Traditions and Global Culture
- A.10. Cultural Diversity
- C.1. Collaboration
- C.2. Human Behavior
- C.8. Ethics and Professional Judgment
- C.9. Community and Social Responsibility

Topical outline:

- Research skills (10%)
- Presentation skills (10%)
- Culture, Diversity, & History (80%)

Prerequisites:

Arch 240: Architecture History and Theory I

Textbooks / Learning Resources:

Self-produced Paris course reader (see syllabus)

Offered:

Summer only; annually

Faculty assigned:

Peter Olshavsky (F/T)

Part 4: Supplemental Information 1 – Course Descriptions

Number & Course Title: ARCH 516 (Elective), Modern Craft, 3 credit hours

Course Description:

Role of Craft in the 21st century including exploration of aesthetic issues and production methodologies, manipulation of materials and evaluation of scale and functional performance.

Course Goals & Objectives:

- To become aware of both the history and aesthetic issues concerning Craft within various design disciplines, and as its own stand-alone discipline.
- To utilize handtools, powertools, and digital fabrication tools to manipulate material in a deliberate way.
- To understand the physicality of materials and issues concerning their joinery at 1:1 scale.
- To understand the triangulated Vitruvian relationship of *Firmness, Commodity and Delight* within the creation of deliberate and meaningful designed objects.
- To consider the role of Craft Objects in the 21st century, amidst their context of industrial products.

Student Performance Criteria:

- | | |
|--------------------------------|-----------------------------------------------|
| A.1. Communication Skills | A.8. Ordering Systems Skills |
| A.2. Design Thinking Skills | A.9. Historical Traditions and Global Culture |
| A.5. Investigative Skills | A.10. Cultural Diversity |
| A.6. Fundamental Design Skills | C.2. Human Behavior |

Topical outline:

History of Craft, aesthetic issues in making, and the role of Craft in the 21st century (60%)

Range of means and methods used in the deliberate manipulation of various materials (40%)

Prerequisites:

Admission to an Architecture professional or graduate degree program in the College of Architecture.

Textbooks / Learning Resources:

"*What is Craft?*" Chapter 1. *The Story of Craft: The Craftsman's Role in Society*. Edward, pp. 11-18.

Lucie-Smith. Ithaca: Cornell University Press: Ithaca.

"*Modes and Resources of Adhocism,*" Part Two. *Adhocism: The Case for Improvisation*. Nathan Silver. Garden City: Anchor Press, 1973.

The Eyes of the Skin: Architecture and the Senses. Juhani Pallasmaa. Chicester: John Wiley & Sons, 2005.

"*Craftsman vs. Designer,*" Chapter 17. *A Theory of Craft: Function and Aesthetic Expression*, pp171-181.. Howard Risatti. Chapel Hill: University of North Carolina Press, 2007.

"*Ability,*" Chapter Ten. *The Craftsman*, pp.268-285.. Riachard Sennett. New Haven: Yale University Press:, 2008.

Offered:

Spring; annually.

Faculty assigned:

Chris Ford (F/T)

Part 4: Supplemental Information 1 – Course Descriptions

Number & Course Title: ARCH 4/5/818 (Elective), Fabrication And Construction Team, 1-6 credit hours

Course Description:

Exploration of the relationship between conceiving and making through hands-on, collaborative experience with design-build projects. Students engage in research, design development, and construction of the commission.

Course Goals & Objectives:

- Students will work with faculty and clients to realize a project
- Take a project from schematic design (provided) through completion
- Identify and collaborate with fabricators and vendors
- Explore alternative forms of collaborative project delivery
- Build mock-ups and prototypes as a method of project refinement
- Prepare cost estimates and project schedules

Student Performance Criteria:

n/a

Topical outline:

(varies with project)

Research & prototyping (20%)

Design Development (20%)

Construction Documentation (20%)

Construction, Fabrication, Installation (40%)

Prerequisites:

permission

Textbooks / Learning Resources:

n/a

Offered:

fall or spring; biennially

Faculty assigned:

Jeffrey L. Day (F/T)

Part 4: Supplemental Information 1 – Course Descriptions

Number & Course Title: ARCH 5/836 (Elective), Daylighting and Energy, 3 credit hours

Course Description:

A seminar/workshop designed to integrate daylighting strategies with building energy performance.

Course Goals & Objectives:

- Students will discover a connection between energy consumption and natural lighting strategies.
- Develop an interface for computer simulation within the design process.
- Perform energy audits.
- Gain further insight into the role technologies play in defining the built environment.

Student Performance Criteria:

- A.1. Communication Skills
- A.2. Design thinking Skills
- A.3. Visual Communication Skills
- A.5. Investigative Skills
- B.3. Sustainability
- B.10. Building Envelope Systems.

Topical outline:

- Solar5, introduction / base case building (15%)
- Analysis / Presentation (25%)
- Modification / Analysis (25%)
- Individual Studies / personal design (25%)
- Presentations (10%)

Prerequisites:

5th-year standing or permission

Textbooks / Learning Resources:

Sun, Wind and Light, architectural design strategies. G.Z. Brown, John Wiley and Sons, New York, 1985.

Offered:

Fall; at program director's discretion.

Faculty assigned:

Nathan Krug (F/T)

Part 4: Supplemental Information 1 – Course Descriptions

Number & Course Title: ARCH 4/5/846 (Elective), Theory and Criticism in Architecture since 1945, 3 credit hours

Course Description:

Study of theory and criticism in architecture since 1945 as related to contemporary American society and culture, with reference to those parallel in other humanities disciplines, including arts, linguistics, literary criticism, and philosophy.

Course Goals & Objectives:

Students will

- examine representative paradigms of theory and criticism in architecture and in other humanities disciplines of the latter half of the twentieth century.
- read critically the texts selected mainly from architecture but also from arts, linguistics, literary criticisms, and philosophy, in reference to the related architectural designs
- analyze the problems addressed, arguments formulated, conclusions reached, and influences made by each school of thoughts.
- develop the student's critical thinking skills in reading, writing, and oral presentation.
- demonstrate the ability to articulate a sound line of arguments supported by thorough reasoning and substantiation.

Student Performance Criteria:

n/a

Topical outline:

Weekly assignments: 50%
Discussions: 20%
Short papers: 30%
Peer reviews: Penalty only

Prerequisites:

ARCH341 or permission.

Textbooks / Learning Resources:

A collection of selected book chapters and journal articles. Refer to the course outline.
The Craft of Research by Wayne C. Booth, Gregory G. Colomb Gregory and Joseph M. Williams.
Chicago; The University of Chicago Press, 2008.

Offered:

Last offered Fall 2012

Faculty assigned:

Rumiko Handa (F/T)

Part 4: Supplemental Information 1 – Course Descriptions

Number & Course Title: **ARCH 585/885 (Elective), Understanding Research on the Built Environment, 3 credit hours**

Course Description:

The course will introduce the students to why we do research, what constitutes research, and how to conduct research. At the end of the course each student will have written a research proposal, a substantial piece to be integrated into his/her own thesis, dissertation, or other pursuits.

Course Goals & Objectives: Student will:

- Understand the purpose of research, and know the components of research proposal and of research dissemination.
- Be able to define the topic of his/her research.
- Be able to identify previous scholarship on the topic, and conduct a review of literature.
- Be able to formulate a research question, and explain its relevance in a wider context.
- Understand different research methods, and identify/design specific research methods appropriate to his/her own research.
- Understand what constitutes ethical conduct of research.
- Be able to write in the academic style appropriate for research.
- Be able to use appropriate formats for illustrations, tables, notes, and bibliography.
- Be able to synthesize all the above, and write a research proposal. The piece will be ready to be a portion of each student's thesis, dissertation, and other research dissemination.

Student Performance Criteria:

n/a

Topical outline:

Quizzes: Mandatory; multiple attempts allowed. Penalty only (3% for each quiz).

Peer Review and Revision: Mandatory. Penalty only (2% each for each review).

Module 1, 2, 3, and 4 (portions of research proposal) and Final Research Proposal (20% x 5 = 100%)

Prerequisites:

Acceptance into M.Arch., M.S. Arch., or Ph.D./Ed.D. program

Textbooks / Learning Resources:

Booth, W. C., et al., *The Craft of Research*. Chicago: U. of Chicago Press, 2008.

Groat, L. and Wang, D. *Architectural Research Methods*. New York: John Wiley & Sons, 2002.

Tufte, E. R. *Envisioning Information*. Cheshire, CN: Graphics Press, 1990.

Offered:

Fall; annually

Faculty assigned:

Rumiko Handa (F/T)

Part 4: Supplemental Information 1 – Course Descriptions

Number & Course Title: ARCH 5/897 (elective), BIM for Design – Advanced Parametric Design, 1 credit hour

Course Description:

Advanced application of Building Information Modeling (BIM) as an interface for creating advanced parametric models and frameworks. Introduction to a graphic programming language, for creating custom computational design systems and parametric frameworks.

Course Goals & Objectives:

Students are expected to have acquired and will be evaluated on an:

- understanding of basic concepts for using BIM with Computational Design concepts
- ability to apply BIM and Computational Design for generating design iteration.
- ability to use available BIM and computational technologies to generate various modes of architectural representation.

Student Performance Criteria:

None.

Topical outline:

Lecture – Finding Intersections Between Computational Design and BIM (10%)

Lab – Geometric and Logic of Graphic Programming – Dynamo for Autodesk Revit; Basic data management, creating conceptual geometry. (20%)

Lab – Controlling BIM Elements – Dynamo for Autodesk Revit; Positioning and transforming basic BIM elements, automating parametric BIM elements. (30%)

Lab – BIM Parameter Control – Dynamo for Autodesk Revit; Generative logic creation, instance parameter control, Type parameter control. (20%)

Lab – Project Development and Presentation. Dynamo for Autodesk Revit; Application of technical skills to sketch design problem, develop supporting graphics. (20%)

Prerequisites:

Admission to Architecture Program

Textbooks / Learning Resources:

Corser, Robert, Ed. *Fabricating Architecture: Selected Readings in Digital Design and Manufacturing*, Princeton Architectural Press (2010)

Pottman, Helmut, et al., *Architectural Geometry*, Bentley Institute Press (2007)

Schodek, Daniel, et al., *Digital Design and Manufacturing: CAD/CAM Applications in Architecture and Design*, John Wiley & Sons (2005)

Offered:

Fall – annually; first offered Spring 2013

Faculty assigned:

Nathan Miller (adjunct)

Part 4: Supplemental Information 1 – Course Descriptions

Number & Course Title: ARCH 497/597/897 (Elective), ...details, 3 credit hours

Course Description:

Focused study of architectural theory and problems of practice and physicality examined in the context of the architectural detail.

Course Goals & Objectives:

- Students will develop an understanding of the issues involved in creating and critiquing architectural details and of their implications for expression (tectonic or otherwise) in architecture. The intention of the course is not to provide a technical introduction to “detailing” but to help students develop decision-making and critical strategies for approaching the topic. Students will hone their ability to generate a theoretical or polemical discussion based on selected readings or research.
- Students will develop a critical approach to architectural details
- Students will study historical and contemporary architectural details
- Students will explore the translation of intention into physical form in details
- Students will develop the ability to engage critical discussion surrounding given texts
- Students will demonstrate the ability to lead a critical discussion of given texts
- Students will prepare an illustrated oral argument and present in front of the class
- Students will develop an ability to analyze architectural details graphically and verbally

Student Performance Criteria:

n/a

Topical outline:

Weekly reading and response papers (30%)

Participation in group discussion (25%)

Research presentations (25%)

Analysis of selected detail (10%)

Development of detail for a studio project (10%)

Prerequisites:

ARCH 341, Architectural Theory

Textbooks / Learning Resources:

2-3 articles assigned per week; examples:

Edward R. Ford, “Preface”, “Introduction”, “Chapters 1 & 3”, in Five Houses, Ten Details

Ed Melet, “The Architectural Detail: God is not in the Detail” and OMA: From no details to NO-Details

Gottfried Semper, Der Stil (optional selections)

Kenneth Frampton, Studies in Tectonic Culture (ch. 1, Intro)

Edward Ford, The Details of Modern Architecture v1 (Intro)

Eduard Sekler, “Structure, Construction and Tectonics”

Tom Peters “An American Culture of Construction” in Perspecta 25

Offered:

fall or spring; biennially

Faculty assigned:

Jeffrey L. Day (F/T)

Part 4: Supplemental Information 1 – Course Descriptions

Number & Course Title: ARCH 597 (Elective), Building Energy Modeling in Design, 3 credit hours

Course Description:

Develop specific domain knowledge necessary to understand and utilize building energy modeling for design analysis to identify, evaluate, and apply energy saving measures.

Course Goals & Objectives:

1. Students will properly apply building energy modeling in design performance evaluation
2. Students will understand what information to simulate during the design process
3. Students will simulate building characteristics in the design process using an iterative goal setting framework
4. Students will gain competence in energy modeling
5. Students will be effective using energy modeling for design analysis and decision making

civic-minded learning outcomes:

1. Volunteer Opportunity: Describe ways in which a person can become involved in the community, such as through community organizations and volunteer opportunities.
2. Contemporary Social Issues: identify community or social issues that need to be addressed.
3. Academic Knowledge and Skills: Apply academic knowledge and technical skills to help address building energy code compliance.
4. Listening (Communication Skills): Utilize listening skills to help understand others' opinions and ideas.
5. Diversity: demonstrate an ability to work in settings with diversity of people.
6. Valuing Community Engagement: Describe the value of being involved in service.
7. Efficacy: Articulate an optimistic yet realistic assessment of the personal impact they can have on social issues.

Student Performance Criteria:

n/a

Topical outline:

Mid-Term Project (20%)

Final Project (70%)

Attendance & Participation (10%)

Prerequisites:

none

Textbooks / Learning Resources:

Net Zero Energy Design: A Guide for Commercial Architecture, by Thomas Hootman, 2012.

Offered:

Spring 2014

Faculty assigned:

Timothy Hemsath (F/T)

Part 4: Supplemental Information 1 – Course Descriptions

Number & Course Title: ARCH 597 (Elective), Digital Fabrication, 3 credit hours

Course Description: (limit 25 words)

Examination of the theory and application of the file-to-factory design process. Exploratory case study projects include small fabricated architectural models of forms, surface and structure.

Course Goals & Objectives:

Students will have an understanding of:

1. Computer numerically controlled (CNC) manufacturing processes used in the construction of the physical form of architecture.
2. Role of digital design methods, emerging technologies and tools used by fabricators and practitioners in the practice of architecture.
3. Materials and methods of digital fabrication.
4. Mass-customization application - derivatives in parametrically controlled variation and serial differentiation.

Students will gain an ability to:

1. Utilize modeling software in digital design process, analysis, virtual manipulation and generation of form and space.
2. Digital translation to rationalize complex forms and shapes for fabrication.
3. Design, fabricate and assemble digitally generated form, structure and surface.
4. Use advanced fabrication equipment such as computer numeric controlled milling, laser cutting, solid object scanning and rapid prototyping.

Student Performance Criteria:

n/a

Topical outline:

Mid-Term Project (30%)

Final Project (50%)

Presentation (10%)

Attendance & Participation (10%)

Prerequisites:

none

Textbooks / Learning Resources:

Digital Fabrications, Architectural and Material Techniques. Lisa Iwamoto. Princeton Architectural Press, 2009.

Offered:

Periodically

Faculty assigned:

Timothy Hemsath (F/T)

Part 4: Supplemental Information 1 – Course Descriptions

Number & Course Title: ARCH 597 (Elective), Digital Fabrication, 3 credit hours

Course Description:

An Introduction of the state of the art in Evidence Based Design with research topics in healthy building design, wellness, and health care architecture and Interiors.

Course Goals & Objectives:

- Identify and examine current and future trends of evidence in architectural and interiors research.
 - a. Students will attend or watch guest lecture. (adobe connect)
 - b. Students will submit discussion topics every week. (blackboard forum)
- Investigating the role that architectural and interiors research can play to meet the current challenges facing designers and users of buildings.
 - c. Students will critically discuss topics each week through responses to peer threads. (blackboard forum)
 - d. Students will ask questions during live presentation during class time. (in class for synchronous students)
- Examining different means of strengthening the relationship between academic and the profession with regard to achieving further and stronger integration of architectural and interiors research in these fields. What can the academy offer the profession? How does the profession use academic research?
 - e. Final presentation and scholarly paper will highlight areas of research currently being utilized by the profession and critical questions necessary to be undertaken.
- Collect and analyze existing research on design and design research in a variety of design typologies.
 - f. Students will use library resources to submit weekly discussions and a final scholarly paper.
 - g. Students will submit a project analysis of EBD application to studio project.
- Generate evidence-based research reports useful to the students and professional community. Translate research findings into a form easily usable by designers.
 - h. Students will prepare a final presentation. (adobe presenter)
 - i. Students will prepare video presentation of project analysis. (adobe presenter)

Student Performance Criteria:

n/a

Topical outline:

Mid-Term Project (15%)

Online Discussion (55%)

Final Project (30%)

Prerequisites:

none

Textbooks / Learning Resources:

Evidence-Based Design for Multiple Building Types by Hamilton and Watkins. 2009.

Offered:

Summer 2013

Faculty assigned:

Timothy Hemsath (F/T)

Part 4: Supplemental Information 1 – Course Descriptions

Number & Course Title: ARCH 497/597/897 (Elective), Architecture in Film, 3 credit hours

Course Description:

Studies of physical and psychological aspects of architecture as they are depicted in film. Reviews of written texts on the history and theory of the filmic representations of architecture.

Course Goals & Objectives:

The film can present. In fact film may surpass traditional means of representations in communicating the emotional and psychological effects of architecture. By examining written texts by architectural and film critics, analyzing selected film excerpts, and producing short films, the students will explore the ways in which architecture participates in sociocultural and political aspects of human life.

1. Critical viewing of films: Students are required to view assigned films prior to the class each week.
2. Required readings: Read the assigned texts prior to the class each week.
3. Class discussion: Be prepared to discuss the film and the topic each week.
4. Analysis paper: Write a paper on one of the topics introduced in the class, referring to a number of relevant films including those not covered in the class.
5. Video production: Produce a short video (2-5 minutes) applying these concepts:

- examine dramatic power -- emotional and psychological effects -- of architecture, using the film as mechanisms that are unfamiliar and even counterintuitive to architects
- critically examine written texts by architectural and film critics and
- analyze selected film excerpts and produce short films
- explore the ways in which architecture participates in sociocultural and political aspects of human life

Topical outline:

Attendance & discussions:	40%	Video Production:	30%
Analysis Paper:	30%		

Prerequisites:

ARCH341 or permission.

Textbooks / Learning Resources:

A collection of selected book chapters, journal articles, and films. Refer to the course outline.

Offered:

Last offered 2011

Faculty assigned:

Rumiko Handa (F/T)

Part 4: Supplemental Information 1 – Course Descriptions

Number & Course Title: ARCH 597 (Elective), Lateral Forces, 3 credit hours

Course Description:

Study of effects of lateral forces related to building structures. An overview of forces, their impacts, general design approaches for minimizing their pressure, code requirements.

Course Goals & Objectives:

- Demonstrate an awareness of wind and earthquake forces and how they impact building design
- Show an understanding of recent advances in seismic and wind codes and other provisions

Student Performance Criteria:

B.9. Structural Systems

Topical outline:

Earthquake Forces and Design Impacts (50%)

Wind Forces and Design Impacts (50%)

Prerequisites:

none

Textbooks / Learning Resources:

Along with model building codes (IBC and ASCE 7), several references are used including:

Designing for Earthquakes: A Manual for Architects. FEMA 454, December, 2006.

Buildings at Risk: Seismic Design Basics for Practicing Architects. Christopher Arnold, AIA/ACSA Council on Architectural Research, Washington, DC, 1994.

Seismic Mitigation. Monograph, National Council of Architectural Registration Boards, Washington, DC, 1999.

Wind Forces. Monograph, National Council of Architectural Registration Boards, Washington, DC, 1998.

Offered:

Spring 2009, Spring 2010, Spring 2011, Spring 2012, Spring 2013

Faculty assigned:

Sharon Kuska (F/T)

Part 4: Supplemental Information 1 – Course Descriptions

Number & Course Title: ARCH 497/597/897 (Elective), Landscapism, 3 credit hours

Course Description:

Case studies between landscape and architecture; thematic study of recent projects and texts.

Course Goals & Objectives:

- Students will develop a critical approach to complex arch. and landscape arch. projects.
- Students will demonstrate the ability to research and analyze design projects.
- Students will distinguish the lasting concept from the momentary trend.
- Students will study recent and contemporary approaches to disciplinarity.
- Students will do close readings, take a position and write critical response papers.
- Students will develop the ability to engage in a critical discussion of given texts and projects.
- Students will demonstrate the ability to lead a critical discussion of given texts.
- Students will prepare an illustrated oral argument and present in front of the class.
- Students will analyze architectural & landscape architectural projects graphically and verbally and to make a coherent presentation of the work.
- Students will conceive and develop beautiful, original and informative analytical drawings.

Student Performance Criteria:

n/a

Topical outline:

Weekly reading and response papers (25%)

Participation in group discussion (25%)

Graphic or constructed analysis of assigned projects (25%)

Research presentations (25%)

Prerequisites:

ARCH 341, Architectural Theory or LARC 241, Landscape History

Textbooks / Learning Resources:

Varies with semester theme and selected case studies; examples:

The Landscape Urbanism Reader

Stan Allen, "Beyond Landscape Urbanism"

Stan Allen, "Infrastructural Urbanism"

Rem Koolhaas, "Generic City"

Carol Burns, "On Site: Architectural Preoccupations"

Alex Wall, "Programming the Urban Surface"

Abalos & Herreros, "Areas of Impunity and Vectoral Spaces", Areas of Impunity

Andrea Branzi, "Models of Weak Urbanization", "Agronica"

Charles Waldheim, "Weak Work..."

Rem Koolhaas, "Bigness, or the problem of Large", S, M, L, XL

Denis Cosgrove, "Airport/Landscape", Recovering Landscape

Alan Berger, "Screening Junkspace", Landscape Architecture, Jan. 2003

Offered:

fall or spring; biennially

Faculty assigned:

Jeffrey L. Day (F/T)

Part 4: Supplemental Information 1 – Course Descriptions

Number & Course Title: ARCH 4/5/897 (Elective), Project Territory, 3 credit hours

Course Description: Comprehensive review and examination of territorial relationships between spatial development, engineering, ecology, political, and architecture. Focuses on emerging factors affecting urban, suburban, and rural communities and spatial configurations beyond the binary of city and country.

Course Goals & Objectives:

- Define ecological, political, and spatial condition within a territory and identify social issues.
- a holistic, comprehensive design effort beyond Schematic Design.
- Structured reflection and reciprocity between the Professional expert to student, students to classmates, and students to citizens.
- Integrate Service and Learning into the course.

Student Performance Criteria:

A9: Historical Traditions and Global Culture
A10: Cultural Diversity
A11: Applied Research
C2: Human Behavior
C9: Community and Social Responsibility

Topical outline:

Phase 1 (25%)

Phase 2 (25%)

Final Report/Pres. (40%)

Weekly Blog Posting (10%)

Prerequisites:

Admission to the College of Architecture Graduate program or permission.

Textbooks / Learning Resources:

“Reshaping Metropolitan America,” Arthur C. Nelson; “Urban Sprawl: A Comprehensive Reference Guide,” Editor: David Soule

Offered:

Fall only; annually

Faculty assigned:

David Karle (F/T)

Part 4: Supplemental Information 1 – Course Descriptions

Number & Course Title: ARCH 497/597/897 (Elective), Theory and Criticism in Architecture since 1945, 3 credit hours

Course Description:

Exploration into the relationship between the evolution of urbanism and the cultural, economic and scientific advances made by civilization

Course Goals & Objectives:

- Develop and understanding of the relationship between the evolution of urbanism and human cultural, economic and scientific endeavor.
- Continue to develop the ability to engage in critical thinking as it relates to making connections between settlement and 'non-design' fields
- Continue to develop the ability to employ research skills in service to speculative/projective thinking
- Continue to develop the ability to employ written communication skills as they relate to the development of an argument springing from research
- Continue to develop the ability to demonstrate oral communication skills as they relate to participation in intellectual discourse and the presentation of a particular position developed through research and speculation.

Student Performance Criteria:

- A.1 Communication Skills
- A.2 Design Thinking Skills
- A.5 Investigative Skills
- A.11 Applied Research
- C.8 Ethics and Professional Judgment
- C.9 Community and Social Responsibility

Topical Outline:

Critical Discussion (in class discussions)	20%
Research/Speculation (research paper)	50%
Verbal and graphic presentation (research presentation)	30%

Prerequisites:

none

Textbooks/ Learning Resources:

none

Offered:

Annually when possible

Faculty Assigned:

Mark Hoistad (F/T)

Part 4: Supplemental Information 1 – Course Descriptions

Number & Course Title: ARCH 691 (Elective), Global Healthcare Research, 3 credit hours

Course Description:

Exploring healthcare issues in selected countries, healthcare architecture, definition of major healthcare issues and a preliminary grant proposal for the resolution of a critical health issue.

Course Goals and Objectives:

- Students will be provided an introduction to research principles and ethics through IRB and CITI requirements.
- Explore a country and culture and the status of healthcare systems and architecture.
- Define a specific healthcare issue and generate a preliminary grant pilot proposal for the resolution of the issue.
- Develop specific proposal goals, tasks, schedule and budget requirements.
- Identify a granting foundation with compatible goals and mission and to complete but not submit the foundation's on line proposal requirements.

Student Performance Criteria:

n/a

Topical Outline:

Research principles and Ethics (15%)

Country and Cultural Issues (15%)

Healthcare Architecture and Systems (15%)

Specific Healthcare Issues Research (15%)

Project Proposal Tasks, Budget and Schedule (25%)

Foundation Grant Proposal (15%)

Prerequisites:

Graduate program status

Textbooks/Learning Resources:

Course is web based and is dependent on the selected country, culture, healthcare architecture and systems as well as the compatible foundations.

Offered:

Spring only; annually

Faculty assigned:

Wayne Drummond

Part 4: Supplemental Information 1 – Course Descriptions

Number & Course Title: CRPL 400 (Required), Introduction to Planning, 3 credit hours

Course Description:

Explores the origins and evolution of American urban and regional planning, planning process as a response to various factors, and introduction of comprehensive planning process.

Course Goals & Objectives:

- Understand the concepts and dimensions of community and regional planning;
- Be familiar with planning literature and example planning documents;
- Understand diverse theoretical approaches to planning analysis and practice;
- Understand various elements of interconnectedness and complexity in planning; and
- Understand the application of ethical principles, civics, and stewardship in the field of community and regional planning, and the importance of these factors to society

Student Performance Criteria:

Ability	Understanding
A7: Use of Precedence	B7: Financial Considerations
A9: Historical Traditions and Global Culture	B8: Environmental Systems
A10: Cultural Diversity	C2: Human Behavior

Topical outline:

Examinations 30% (In-class exam #1 - 15%; In-class exam #2 15%)
Issue Paper 15%
Planning Commission report 15%
Project 25% (Individual work - 15%; Team report and presentation - 10%)
Class attendance and participation 15%

Prerequisites: None.

Textbooks / Learning Resources:

Levy, John M. 2013. Contemporary Urban Planning. Tenth Edition. Boston: Pearson.

Offered: Fall and spring; annually

Faculty assigned:

Gordon Scholz (F/T), Rodrigo Cantarero (F/T), Yunwoo Nam (F/T)

Part 4: Supplemental Information 1 – Course Descriptions

Number & Course Title: ARCH 222 (Required), BIM for Design – Introduction to BIM , 1 credit hour

Course Description:

Introduction to Building Information Modeling (BIM) and its application for design. Overview of the capabilities of BIM for 3D modeling, information tracking, documentation, and collaboration.

Course Goals & Objectives:

Students are expected to have acquired and will be evaluated on an:

- understanding of basic concepts for using BIM for conceptual design and design development
- ability to apply BIM concepts for developing an architectural design
- ability to use available BIM technologies to generate various modes of architectural representation

Student Performance Criteria:

A.3. Visual Communication Skills

A.7. Use of Precedents

Topical outline:

Lecture – BIM in Contemporary Design Practice (10%)

Lab – Parametric massing and modeling – Autodesk Revit; Basic form creation, mass quantification, set out geometry, model datums, levels, grids, graphic control, document development. (20%)

Lab - Basic building elements – Autodesk Revit; Columns, floors, roof, graphic control, document development (20%)

Lab - Interior building elements – Autodesk Revit; Walls, doors, stairs, graphic control, document development. (20%)

Lab – Exterior building elements and families. Autodesk Revit; Curtain systems, curtain panels, family customization, graphic control, document development. (30%)

Prerequisites:

Admission to Architecture Program

Textbooks / Learning Resources:

Kensek, Karen, Ed. *Building Information Modeling: BIM in Current and Future Practice*, John Wiley & Sons (2014)

Schodek, Daniel, et al., *Digital Design and Manufacturing: CAD/CAM Applications in Architecture and Design*, John Wiley & Sons (2005)

Offered:

Fall and Spring, first offered Fall 2014

Faculty assigned:

Nathan Miller (adjunct)

Part 4: Supplemental Information 1 – Course Descriptions

Number & Course Title: ARCH 231 (Required), Structural Fundamentals, 3 credit hours

Course Description:

Introduction to the concept of structure as integral and essential to architectural design. Exposure to basic physical principles and structural systems.

Course Goals & Objectives:

Students will:

- Understand the standard structural systems and the forces that shape them
- Contrast and compare different structural systems as form determinants
- Become familiar with the basic “rules of thumb” associated with standard structural systems

Student Performance Criteria:

A.5. Investigative Skills
A.7. Use of Precedents
A.11. Applied Research
B.9. Structural Systems

Topical outline:

Basic Physical Principles (30%)
Theory and Behavior of Systems (70%)

Prerequisites:

Admission to a professional program in the College of Architecture or permission

Textbooks / Learning Resources:

Information will be gathered from numerous sources including, but not limited to:

Understanding Structures. Fuller Moore. Dubuque: McGraw Hill, 1999.

Shaping Structures: Statics. Wacław Zalewski and Edward Allen. New York: Wiley & Son, 1998.

Building Structures Illustrated: Patterns, Systems, and Design. Francis D.K. Ching. New York: Wiley & Son, 2013.

Offered:

Fall 2014

Faculty assigned:

Sharon Kuska (F/T)

Part 4: Supplemental Information 1 – Course Descriptions

Number & Course Title: ARCH 232 (Required), Materials and Assemblies, 3 credit hours

Course Description:

Introduction to materials and assemblies with an emphasis on design implications and contemporary practices.

Course Goals & Objectives:

- . to introduce the properties and possibilities of building materials.
- . to form an understanding of how buildings are assembled.
- . be able to analyze, form opinions, and critically think about materials and assemblies.

Student Performance Criteria:

- A.1 Communication Skills
- A.2 Design Thinking Skills
- A.7 Use of Precedents
- A.9 Historical Traditions and Global Culture
- B.10 Building Envelope Systems
- B.12 Building Materials and Assemblies

Topical outline:

- The Art that is Architecture (50%)
 - the concept of shelter (05%)
 - Structure and Properties of Matter (05%)
 - The Materials of Construction. (40%)
- Assemblies (50%)
 - Tectonics (05%)
 - How Buildings Work (45%)

Prerequisites:

none

Textbooks / Learning Resources:

Under Consideration.

Offered:

Spring only; annually

Faculty assigned:

Nathan S. Krug (F/T)
Assigned Teaching Assistant (P/T)

Part 4: Supplemental Information 1 – Course Descriptions

Number & Course Title: DSGN 110 (Required), Design Thinking, 3 credit hours each

Course Description:

Introduction to a problem approach employing a user-focused, iterative, team-based process. Students practice promoting multidisciplinary innovation in experiential labs, lectures, workshops, and class discussions.

Course Goals & Objectives:

- At the end of the course students will have learned and applied the 7 stages of creative problem solving in real-world situations:
- Empathy: value the needs of those you are designing for.
- Define: interpret problems as opportunities for creative solutions.
- Ideate: generate a range of possible solutions for a problem.
- Prototype: articulate the core elements of solutions to others through verbal, written and visual forms of communication.
- Test: assess success and failure of a given design solution.
- Design Process: implement all phases of the design thinking process.
- Collaboration: recognize diverse perspectives in a team organization as an opportunity to create innovative solutions.

Student Performance Criteria:

n/a

Topical outline:

Content quizzes	10%
Guided Reflections	20%
Design Modules	70%

Prerequisites:

Acceptance in the College of Architecture, acceptance in the Jeffrey S. Raikes School of Computer Science, or permission.

Textbooks / Learning Resources:

None.

Offered:

Fall and Spring annually

Faculty assigned:

Brian Kelly (F/T) College of Architecture

Ian Cottingham (F/T) Jeffrey S. Raikes School of Computer Science and Management

Part 4: Supplemental Information 1 – Course Descriptions

Number & Course Title: DSGN 111 (Required), Design Making, 4 credit hours

Course Description:

The course will build upon the skills acquired in Design Thinking focusing on making within the design process as a means to developing an idea.

Course Goals & Objectives:

At the end of the course students will have learned and applied following skillsets:

- Demonstrate proficient application of the design thinking process. (application)
- Investigate and infer the potential relationship of design proposals to the user. (analysis)
- Use basic design elements and principles in the creation of form and space. (application)
- Describe the qualities and appropriateness of craftsmanship based on a project's context. (comprehension)
- Demonstrate ability to accurately represent design proposals. (application)
- Demonstrate iterative making as an essential component in the development of a design proposal. (application)
- Demonstrate skills of working 1:1 with actual materials. (application)

Student Performance Criteria:

None assigned

Topical outline:

Content quizzes	06%
Guided Reflections	09%
Design Modules	80%
Participation /development	05%

Prerequisites:

DSGN110 Design Thinking and acceptance in the College of Architecture, or by permission.

Textbooks / Learning Resources:

None.

Offered:

Spring and Summer annually

Faculty assigned:

Betsy Gabb (F/T)	Kate Saroka (adjunct)
Brian M. Kelly (F/T)	Christopher Turner (adjunct)
Emily Andersen (adjunct)	

Part 4: Supplemental Information 1 – Course Descriptions

Number & Course Title: DSGN 120 (Required), Design Drawing, 5 credit hours

Course Description:

Introduction to the fundamental practices of observational, projective and speculative drawing for design through a variety of media and drawing techniques.

Course Goals & Objectives:

- Students will be able to demonstrate well crafted design drawing skills in both perceptual and projective drawing.
- Students will be able to express ideas in a variety of drawing media.
- Students will develop an avid sketchbook practice and understand drawing as an iterative and serial process of inquiry.
- Students will be able to link drawing practice with generating ideas regarding spatial form, and luminous expression.

Student Performance Criteria:

- A. 1. Communication Skills
- A. 2. Design Thinking Skills
- A. 3. Visual Communication Skills
- A. 6. Fundamental Design Skills

Topical outline:

- Observational drawing fundamentals (25%)
- Descriptive geometry fundamentals (15%)
- Observational interior drawing (20%)
- Landscape drawings (20%)
- Projective architectural drawing (20%)

Prerequisites:

Admission to the College of Architecture or permission

Textbooks / Learning Resources:

None

Offered:

Fall and Spring ; annually

Faculty assigned:

Tom Laging (F/T)
Chip Stanley (Adjunct)

Part 4: Supplemental Information 1 – Course Descriptions

Number & Course Title: DSGN 123 (Required), Computer Applications in Design, 3 credit hour

Course Description:

Computer technology application for design disciplines. Enabling effective use of computer technology to produce measured drawings and digital models for design investigation, visualization, and communication.

Course Goals & Objectives:

Students are expected to have acquired and will be evaluated on an:

- knowledge of relationships and differences between analogue and digital techniques and practical and theoretical understanding as to how they relate to and influence design and the design process
- an understanding of basic applications, techniques, workflows, concepts, and theories in areas of digital technology as it relates to the design communication, visualization, and documentation
- an ability to use computer applications and digital techniques to communicate design and assist in design ideation, design development, and explorative drawing
- an ability to use computer applications and digital techniques to create measured drawings (with conventions), competent digital models, diagrams, visualizations, and graphic layouts

Student Performance Criteria:

A.3. Visual Communication Skills

A.8. Ordering System Skills

Topical outline:

- 25% Measured Drawing and Modelling
Lecture: Units, Lineweight Conventions, Constructed Drawing
Lab: Basic Rhinoceros, Basic Illustrator, Basic Photoshop
- 25% Nurbs Behavior/Digital Materials
Lecture: Digital vs. Physical Technique, Precedents and History
Lab: Advanced Rhinoceros, Advanced Illustrator
- 25% Organizational Systems and Logics
Lecture: Construction Syntax, Parametrics
Lab: AutoCAD (Collaborative Drawing), Rhinoceros, Illustrator
- 25% Digital Imaging
Lecture: Raster/Vector, Rendering and Collage Techniques, Layout
Lab: 3ds Max, Advanced Photoshop, InDesign

Prerequisites:

Acceptance in the College of Architecture or permission.

Textbooks / Learning Resources:

- Ching, Francis. Architectural Graphics. 2009.
Collier, Graham. Form, Space and Vision. 1965.
Fraser, Ian, Henmi, Rod. Envisioning Architecture: An Analysis of Drawing. 1993.
Pottmann, Helmut et. al. Architectural Geometry. 2007.
Tufte, Edward R. Envisioning Information. 1990.
Yee, Rendow. Architectural Drawing: A Visual Compendium of Types and Methods. 2007.

Offered:

Fall and Spring – annually; redeveloped '13-14 from ARCH/LARC/IDES 123

Faculty assigned:

Noah Ives (adjunct)

Part 4: Supplemental Information 1 – Course Descriptions

Number & Course Title: DSGN 140 (Required), History of Design, 3 credit hours

Course Description:

Thematic exploration of the history and theory of design as it relates to political, economic, and societal shifts.

Course Goals & Objectives:

- Understand design terms
- Identify and analyze historical works and theories
- Identify multiple causes of events, historical processes as they relate to the history of design knowledge, ideas and practices
- Use knowledge and historical perspective to describe and analyze contexts of events, ideas and/or social and cultural practices of design
- Comprehend established scholarly methods in investigating and interpreting the past
- Frame research questions in the context of existing scholarly literature
- Locate, interpret, and analyze primary and secondary sources relevant to research questions according to standards of evidence appropriate to the humanities
- Synthesize research skills to conceive and execute historical research and writing

Student Performance Criteria:

- A.1. Communication Skills
- A.5. Investigative Skills
- A.7. Use of Precedents
- A.8. Ordering Systems Skills
- A.9. Historical Traditions and Global Culture
- A.10. Cultural Diversity
- A.11. Applied Research
- C.8. Ethics and Professional Judgment
- C.9. Community and Social Responsibility

Topical outline:

- Research skills (35%)
- Professional Communication skills (10%)
- Culture, Diversity, & History (55%)

Prerequisites:

none

Textbooks / Learning Resources:

Assignments includes various primary and secondary source readings (see syllabus)

Offered:

Spring only; annually

Faculty assigned:

Peter Olshavsky (F/T)