1. COURSE DESCRIPTION:
This comprehensive design studio focuses the knowledge and skills developed in all previous courses on a single inclusive project. The course emphasizes in particular the design integration of the building’s structural, environmental and other systems. Not for graduate credit. Prerequisites: ARC 342, 362, 451, 481, 482 or concurrent enrollment, and major in architectural studies or consent of school director.

This is a project development course that emphasizes the integration of the basic elements of building, structural, environmental and other technologies for a two or more story building. The first half of the semester includes a series of assignments to go over important knowledge supporting architectural design such as site analysis, structural and lighting design, environmental systems, building materials, assemblies, and envelope systems. The second half of the semester includes continued design development and documentation of the same project, although this design process starts in the first half with concept and schematic project development. The studio requires 12 hours per week of class attendance, but also additional hours of extra class work.

Overall Goals:
- Broaden and apply the experiences and knowledge gained in previous architectural design and technology classes.
- Simulate the typical office experience by sketching and conceptualizing a project, comprising analysis of basic knowledge on transcendent issues, and then preparing the design development and pre-construction documents phases of the building project.
- Convey the importance of the development of a design in an architectural project.
- Further develop the skills in the disciplines of schematic design, conceptualization, knowledge management, design development, and representation of the design intent.
COURSE OBJECTIVES:
Upon completion of this course, the student will be able to:

1. Focus the acquired skills and knowledge into the comprehensive design of an integral architectural project.
2. Demonstrate the integration of structural, environmental, lighting and other building systems in the setting of an architectural project.
3. Emphasize abilities on design development, drawing documentation, and model presentation of the project.
4. Understand and respond to natural and built site characteristics in the development of a program and design of a project.
5. Access, select, and integrate structural systems, environment systems, life-safety systems, building envelope systems, and building service systems into building design.
6. Demonstrate an understanding of the codes, regulations, and standards applicable to a given site and building design, including occupancy classifications, allowable building heights and areas, allowable construction types, separation requirements, occupancy requirements, means of egress, fire protection, and structure.
7. Assess, select, configure, and detail an integral part of the design and select appropriate combinations of building materials, components, and assemblies to satisfy the requirements of building program.
8. Make technically precise descriptions and documentation of a design for the purpose of review proposed.
9. Produce an architectural project informed by a comprehensive program, from schematic design through the detail development of programmatic spaces, structural, lighting, and environmental systems, life-safety provisions, wall sections, and building assemblies, as may be appropriate; and to assess the completed project with respect to the program’s design criteria.
10. Demonstrate the principles of sustainable design through the appropriate integration of the issues of program response, context, site analysis, orientation, climate, materials, tectonics, structure, environmental systems, day lighting, and codes into a design project of moderate complexity.

2. INTERNATIONAL CO-TAUGHT EDITION:

Current technologies have brought us to new stages and possibilities for teaching in all fields. In architecture schools not only drafting, rendering and modeling software have played a revolutionary roll in terms of students’ creation and representation of their proposals, but also in their distant interaction to each other, to professors, and other acting protagonists on their education process. Creative ways of leading design studios with the help of on-line tools could be very helpful when thinking about new instructional models. One current trend of many universities today, as an extended concern, is students’ internationalization. Undergoing transcendent international experiences which are able to open wide new opportunities of development and future performance as professionals on a global world. Co-teaching equivalent design studios among students of two different universities from two different countries is possible thanks to today’s
technology. Dealing with different design approaches, traditions, building codes, markets, cultures, etc. is an intensive learning opportunity for any college student no matter where he/she is enrolled. In this International Edition, ARC452 Integration Studio will be co-taught to students at Southern Illinois University and Tecnológico de Monterrey (Monterrey Tech) simultaneously during the 2015 spring semester by professors at both institutions seeking as much inter-university interaction as possible. The program for this studio design will follow the Steel Student Design Competition 2014-2015 called by the Association of Collegiate Schools of Architecture (ACSA) on its Category I: LIBRARY. There will be two sites for the design exercise during the studio: 1) the first is the case of the new central library to be built in the Monterrey Tech campus at Monterrey Mexico — intended to serve campus population—, in the same place where currently the library is and that soon will be torn down. 2) The second is a new specialized library in New Harmony, Indiana strategically located to serve university population of professors, students and researchers of a diversity of higher education institutions located in St. Louis, Missouri; Edwardsville and Carbondale, Illinois; Bowling Green and Louisville, Kentucky; and Evansville, Columbus and Indianapolis, Indiana.

2.1 Methodology: This is a combination lecture and studio course. The lectures may be given at any time during the studio period for the presentation of information, concepts, ideas, questions, etc. for studio assignments and demonstration of techniques. Students will be expected to complete reading assignments in required textbooks and supplemental readings as assigned, research as required for each topic, and take notes in discussion sessions. Each student is expected to participate actively in each session by asking and answering questions, exploring solutions by discussing notes, concepts and ideas in an informal manner. Advance preparation on each topic is required. Please have all materials and supplies at your desk for critiques, demonstrations, review, and work. Do not expect to leave studio to go home to work on your computer, this is not an isolated profession, it is a team-orientated profession. Do not expect critiques on small 8 ½” x 11” fit to sheet, on digital screen, or on non-scaled drawings. It is important that all work is appropriate and at a readily discernable scale.

As far as teamwork is concerned, learn to express your thoughts while accepting the ideas of others, particularly in this international experience, and building the collection of ideas into an overall collective work. Teams of professionals produce the built environment. Therefore, a portion of the work produced in this course will be carried out in a team environment, first by some assignments to be prepared and presented by two member teams either mixed (one from every other university) or from two SIU students. The model promoted is often referred to as a ‘participant-observer’ mode and part of interactive learning processes. The embracing and integration of multiplicities and divergent points of view into singular frameworks is critical to modern society. Here, every person works together for the greater goal. To further encourage public accountability; co-grading will occur between individuals and teams.

2.2 Owning the Problem (or ‘Accountability’) - If this course is to be valuable to you it must be meaningful. For it to be meaningful you must find it relevant to the fulfillment of your personal goals. You must find it useful in some way. How you find it
and making it useful and thus meaningful is up to you. You will be presented content that has been found to be useful to many people in architectural studies for many years. You must find how to make it yours. Professors in this studio challenge each of you to further develop your experience (increase your ownership) in those areas in which you have some familiarity, and to embrace those areas in which you have none (read/research). It is important that each person learns how to manage the many multifaceted and relational aspects of architecture and to hold accountability for their work in relation to others. This class has the added potential aspect that the class can and will be restructured (only for the better), if the need or proposal arises in a democratic fashion. Of course though, the instructors have the final say and approval for such changes to the scope of work.

2.3 Studio Expectations: Attendance and participation is expected in the design studio as it is the core of your professional education and as such your participation is an indication of your desire to be an architect. In order for the studio and your own experience to be fully developed, each individual needs to be available and working in the studio during the whole schedule hours and at other times as well. Always be prepared to work during the studio. Bring ALL work To ALL classes. Be prepared to present your work formally or informally during any class session. Work left ‘at home’ is treated as work not able to be shown, and thus discounted. Both sections will work together as one and will share all common facilities on classroom as well as elsewhere. Team work could be done with classmates from any of the two sections. Please arrive on time, as often the studio will start with general comments, instructions, and discussions that affect the whole studio. If you arrive late you will miss these discussions and inconvenience the others. It is required that you stay till the end of the studio period; again there are often comments, summaries, made at the end of the studio that affects everyone. Please do not ask to leave early after you have had a critique. Equipment and materials are required in the studio at all times. Students who are not in studio do not benefit from the information and demonstrations presented. It is your responsibility to obtain any missed information from other students. All assignments and projects must be turned in at the specified time and place. Late projects with an excused absence, as defined by the university’s guidelines and with prior notification to the instructor of absence may be accepted. Late projects with an unexcused absence will be penalized by a letter-grade for each class day the project is late. The professor should be notified by telephone or e-mail of any absence. The student must present verification of excused absence at the next scheduled class attended. The Department policy indicates that if you miss three classes, your course grade will then be reduced by one letter grade. Students who do not officially withdraw from the course before the drop deadline will receive a grade based upon their semester average, which will include a zero for projects assigned and not turned in and graded. Continual non-attendance of a course does not automatically drop you from the class list. There is a direct relationship between attendance, participation, and level of grades….

This studio is your shared home and responsibility for the semester. It is a dedicated space for your use and benefit. As we all share the studio please keep it reasonably clean and be very careful with food and drinks. There is no smoking allowed in the studio, this applies to evenings and weekends. The use of spray adhesive or spray paint is not
allowed in the drafting studio or the building. Just go outside to use these materials and put down a protective mat/screen to protect the environment. No destruction of building assemblies (windows, ceiling tiles/grids, doors, walls, floors, blinds, etc.). Please take care of the furniture. Use a cutting mat to protect and preserve the desktops. All of the above is classified as destruction of university property and therefore subject to university student conduct statutes. A key to the studio will be supplied at the beginning of the semester which must be returned to the school or final grade may be withheld. **Lock the doors if you are the last one to leave.** Learn to work in the studio and exchange ideas with your peers.

Use of LAPTOP/COMPUTERS during class should be restricted to class use (e.g. not for games, shopping, chatting, etc...) Cell phones should be turned off during lecture sessions as a courtesy to the teacher and to fellow students. Engaging outside work during class is counter-productive and indicates a conflict of interests and poor time management. Please keep all work in class to the assignment-at-hand.

**Readings:** Special reading and/or research assignments will be made per assigned goals from a reading list, suggested Web Sites, and relevant Code related references, and/or placed on reserve in the Arch/I.D. Library or Morris Library and/or in SOA Library.

**Supplies/Equipment:** To be specified by the faculty.

**2.4 Sketchbook – Journal:** Each student should have their own complete journal sketchbook with a continuous record of research, reading notes, thoughts, sketches, graphic representations of ideas, etc. available for review with the faculty at all times. We recommend a bound (plain or grid type) sketchbook to keep project notes, addresses, business cards, phone numbers, field notes, diary entries, sketches and maps, etc. for the entire project. Entries can be scanned for inclusion with digital presentations. Record our individual in-class meetings, lecture notes, city meetings, fieldwork, and references to other research. This sketchbook-journal will be reviewed prior to mid-term and again at the end of the term.

**2.5 Student Conduct:** Please review the SIUC Student Conduct Code - SIU UNDERGRADUATE CATALOG regarding University policy regarding Acts of Academic Dishonesty. Unless required as part of a team effort, students are to do their own work. Do not trace or copy, including electronic copies, of another student's research or work unless specifically cleared with your instructor. If there is ANY QUESTION, do not hesitate to ask, as this is a very serious offense, subject to the above referenced Student Conduct Code. In addition, undermining the class processes or other students (work or otherwise) is unethical to the greater good and is equally considered to be cheating fellow students. Please keep all actions transparent and open to all involved. If we engage field work and community settings, remember that we not only are representing Southern Illinois University, we are representing the School of Architecture and our profession that “serves the public” and “serves in the best interest of the public”. Please be respectful of others around you and act accordingly.
Please refer to the *SIUC SOA Studio Culture Policy* for a description the fundamental properties and expectations of the studio setting.

Special Concerns: IF ANY REASON exists which may prevent you from giving your full and undivided attention to the successful completion of this class you MUST advise your instructor immediately. If there is any problem or concern that you have which might impact your performance in the class, please inform the instructor the first week of class. To be registered for this class, you must satisfy the prerequisites for the class. If this is not the case or you are uncertain, you must see the instructor, advisor, or Chair immediately.

**NOTE 1:** The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please let me know at your earliest convenience so that SIUC Disability Support Services (DSS) can help with the appropriate academic accommodations. DSS (618-453-5738; or http://disabilityservices.siu.edu) typically recommends accommodations through an Accommodations Agreement Form. Any information you provide is private and confidential and will be treated respectfully as such.

**NOTE 2:** This class will be conducted in a professional manner and will be considered a ‘zero tolerance’ atmosphere. Discrimination will not be tolerated.

**2.6 Evaluation:** Final grades are based on an evaluation of student performance of assigned projects. Each task is assigned a percentage of the final grade (100%) based upon the scope and duration. Each task is assigned a grade. The final grade is derived by multiplying each assignment within the overall project grade by its percentage, the total of these numbers is the semester grade, less any deductions for excess absences. Each assignment has a series of sub-grades based on each level of work progression and specific tasks needed to fulfill the project. Since the assignments are group or team oriented, there will be co-grading amongst team members to promote interaction and participation in one’s own value in a social setting, emulating urban design as it is especially a reflexive, social practice, not a *pure art* of its own. In addition, the professors will grade accordingly in the ‘traditional’ manner as the final authority to the success of the project and/or progress of the student. The final grade outcome is still the burden of the professors. While there will be scheduled discussions and written reports of each students’ progress, it is ultimately up to the student to consult with the professors on a collegiate on-going basis if there is any question of the status of the student.

**Grading Policy:** Assignments are due on the hour and date specified for submittal or presentation. Late deliveries will be considered for evaluation only with prior approval by the instructors.
Grading Scale (Interpolated from NAAB SPC grading criteria below):

**A** Above the expected. Only the very top process and product. 90% + -- Clear and working understanding of all course concepts as demonstrated through discussion, critique and work. Do you know what integration issues are relevant and did you use them? Meeting ALL the individual, team, and class work requirements and completing them at the top level of the class.

**B** Best and more than required. Clearly well above the average work. 80% - 89% -- Shows clear understanding of integration concepts as demonstrated through discussion, critique work. Meeting ALL the individual, team, and work requirements and completing them near the top level of the class.

**C** Center of the pack / average. Meets minimum acceptable standards 70% - 79% -- minimal understanding of course concepts as demonstrated through discussion, critique and work. Meeting ALL the individual, team, and class work requirements. And completing them at a level that meets minimum standards. Shows understanding of course concepts as demonstrated.

**D** Deficient. Below standards of the department and course. 60% - 69% -- lack of understanding of course concepts as demonstrated through discussion, critique and work. Not meeting ALL the individual, team, and class work requirements OR completing them at a level below minimum standards. Unable to exhibit skills needed to be a potential professional. Lacks sufficient course concept understanding as demonstrated.

**F** Failing. Complete lack of understanding of concepts and required class work. Less than 60%

**INC** Incomplete - Will be used only in exceptional circumstances beyond the control of the student. The student must be passing the course at the time.

**Indicators of Student Performance Related to Objectives**

Assessment will be based on the senior design project completed in ARC 452; Architectural Design and Construction Documentation. The students culminate their educational process with a comprehensive design, documentation, and presentation of the project (re: NAAB Student Performance Criteria below).
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3. ACSA STEEL COMPETITION

USE OF STEEL
Steel must be used as the primary structural material. Design proposals must contain at least one space/element that requires long-span steel structure, with special emphasis placed on innovation in steel design. The most compelling proposals will inevitably integrate the use of steel into the design of the project at multiple levels, from primary structure to building envelope and tectonic details.

INTEGRATED DESIGN
Design proposals must reflect a clear conceptual strategy, which is resolved in built form at a detailed level. The project should be developed with an integrative approach to the innovative use of building materials and systems—spatial, structural, environmental and enclosure. Participants will develop a selected physical area of the project in greater detail considering the building’s systems through larger scale drawings showing structure, environmental strategies, building envelope and interior spaces. Through rendered perspectives and elevations, the proposals should demonstrate surface qualities including material, color, texture, and light. Together with the integrated resolution of structural, tectonic and technical issues, projects should be designed in a socially and environmentally responsible manner. Design proposals should respond to the physical context (geography, topography and latitude), climate (sun, wind, light and water), and culture (patterns of interaction rising from human occupation). Projects should demonstrate reduced dependency on non-renewable resources and the integration of environmental responsibility with the architectural vocabulary of the proposal.

CODE INFORMATION
Refer to the International Building Code and the local zoning ordinance for information on parking requirements, height restrictions, set backs, easements, flood, egress and fire containment. All proposals must be designed to meet requirements for accessibility; for guidelines, refer to the Americans with Disabilities Act and the principles of Universal Design.

OVERVIEW
The library – a place where knowledge is collected, curated and disseminated - is one of the oldest and most distinguished of building types. Ancient civilizations around the world painstakingly recorded and stored information on stone tablets, papyrus scrolls and animal skins. These collections of information were managed by the privileged and powerful – emperors, kings, generals, priests and scholars. The mechanical printing press replaced highly prized handmade artifacts with mass produced documents on paper. This technological development enabled the unrestricted circulation of information and ideas, which in turn spurred political revolutions and religious reformations. Expanding literacy gave birth to the public library. Free public libraries, which provide services to all and feature open stacks that allow people to choose books for themselves, have contributed
significantly to political and economic progress. The library continues to evolve and
embrace new forms of mass communication, which are reshaping our world. Like the
building type, the book itself has changed dramatically – from treasured work of art to
virtual electronic formats. In addition, libraries collect music, film and other audiovisual
media. To reinforce local on-site resources, they have digital access to collections
worldwide. The library today is an open source exchange for all forms of information and
entertainment. Serving an increasingly diverse public, the library must now accommodate
many forms of social interaction, both face-to-face and digital. Despite the ability to
download all forms of media anywhere and at any time, the library, through the social
and information networks it fosters, continues to play a critical role as cultural agent in
the community.

THE DESIGN
The design of the library should be guided by the principles of innovation, creativity,
identity, sustainability, functionality and efficiency. Your proposal should take a strong
conceptual position about the changing nature of the library as a building type and as a
mirror of contemporary culture.

3.1 LIBRARY Category I

STEEL COMPETITION

THE PROGRAM
The total area of the program may range between 30,000 – 100,000 square feet and
should be compatible with the needs of the population served. The circulation systems of
the library should be designed to accommodate the differing needs of staff, patrons and
the general public. Library staff should be able to circulate between offices and
workrooms in private. Open access to collections for library users must be balanced with
the need for all patrons to pass through security screening before leaving the building.
Facilities for the general public must be able to operate both when the library is open as
well as independently outside library hours.

PROGRAMMATIC SPACES
Entrance
Reception/information; reference and periodicals; secure return accessible from outside;
public cloakroom/lockers/restrooms.

Collections
Spaces for storage, display and checking out of books, music, film and other relevant
media.
Active Spaces
Spaces for individual and group use of collections and digital media; acoustically isolated classroom(s); meeting room(s).

Library Staff Facilities
Reception area and offices; circulation workroom for sorting and repairing returned materials; staff lockers and lounge.

General Public Facilities
Café; forum for readings, talks and/or performances with relevant support spaces.

Building Support
Public/staff parking as appropriate for the context; loading dock for library materials, building supplies and trash; furniture/equipment/supplies storage; building maintenance staff office(s), lockers and lounge

Exterior Spaces
Secure exterior space for library users and/or outdoor space for the general public

The design should be guided by the principles of innovation, creativity, identity, sustainability, functionality and efficiency.

RESOURCES
An intention of all ACSA competitions is to make students aware that research is a fundamental element of any design solution. Students are encouraged to research material properties and methods of steel construction, as well as precedent projects that demonstrate innovative use of structural steel.

STEEL CONSTRUCTION REFERENCES
1. AISC website: www.aisc.org
2. Modern Steel Construction: This authoritative monthly magazine is made available free of charge to architectural students taking steel design courses. This magazine covers the use of fabricated structural steel in the variety of structural types. It presents information on the newest and most advanced applications of structural steel in a wide range of structures. Issues of Modern Steel Construction (1996 - Present) are available online. Visit www.modernsteel.com to view them. Terri Meyer Boake. Understanding Steel Design: An Architectural Design Manual. (Birkhäuser 2013)
4. SEMESTER ASSIGNMENTS

A1  Context and Site Analysis .........................................................[intl. teams]

With this analysis problem you are asked to fully investigate a specified site and context which will become an integral part of your semester studio project. You will work in your groups for this assignment, with each of the groups responsible for presenting a different aspect of this area to the rest of the studio. You need to quickly search out detailed data and historical information, and get down to business ANALYZING the context and site. The specific data for the site is crucial for the base knowledge that you will integrate into your site master plans and individual programs in order to address modern ecological, social and social concerns. This detailed information will inform your approach to the urban and building design process. The historical analysis and analysis of existing conditions and will help inform your group and the rest of the class on how to proceed with developing strategies for a design response that takes into account the past, present and future. The critical components you will be trying to explore are environmental, studies of movement, landscape conditions, human and architectural history, zoning and typological studies of context. How has the area evolved over time? Where are the next evolutions happening? How has architectural form shaped the place and what is the meaning of place today and for the future? Remember we are working in metrics!

It should also be noted that you are responsible for finding credible sources for your research and sourcing them. This research should start with the site itself, photos and historical research typically found in local libraries or in the stacks of the library and/or the Avery index for architectural periodicals. These presentations should be concise, but thorough and graphically sophisticated. The primary component of the presentation should be a series of diagrams that explain graphically and clearly what you have learned about your assigned context or site analysis and what you believe to be the critical components that your classmates must consider when designing a project on this site and in this context.

Sustainable design protects and benefits ecosystems, watersheds, and wildlife habitat in the presence of human development. How does the development of the site respond to its ecological context? Consider water, air, plants, and animals at different scales.

ASSIGNMENTS

Group 1- Environmental Analysis:
This is the Atmospheric and nature examination, for example annual temperatures, rainfall, sunny cloudy days, humidity, wind, solar elevations, soils and other environmental analysis.

Group 2- Figure-Ground Studies:
That can be shared and used by the entire class throughout the semester to minimally include: roads/parking to area, pedestrian walkways, building to open land, building to roads. These should be presented in both white to black and black to white studies. Zoning, land usage: of site model area and larger context
Group 3- Social + Cultural Significance:
Monterrey, and particularly Distrito Tec: The food, the clothing, the behavior, traditions, festivities, sports, religion and traditions of the people.

Group 4- Landscape Issues:
Parks and green areas, landscape architects, existing and historical topo’s, existing and historical landscape and site conditions such as utilities, vistas, site lines, rivers, vegetation, natural conditions and any previous hazardous use.

Group 5- Historical Significance:
Monterrey Tech Campus Mexico, New Harmony Indiana, and Rio de Janeiro Brazil: Not buildings, the history of the place.

Group 6- Architectural Specifics:
What materials, construction techniques, existing/historical building materials/resources, visual qualities, sustainable, spatial relationships for Rio architecture and construction.

Group 7- Driving/Transit Studies:
For example times involved, connections points, distances traveled, services provided, street widths, intersections, traffic controls, parking.

Group 8- Pedestrian/Bicycle Studies:
For example sidewalk widths, bicycle lanes, safety controls, times involved, connections points, distances traveled, services provided and accessibility (universal design).

Group 9- Site Ecology: How the development of the site responds to its ecological context, including the watershed, and air and water quality at different scales from local to regional level. How the development of the site and buildings contribute to environmental quality. How the design accommodates wildlife habitat preservation and creation.

Group 10- Site Ecology: How the design protects or creates on-site ecosystems. How the design responds to local development density or conditions. How the design encourages local food networks.

FOR REVIEW
PowerPoint presentation of your research and analysis. PDF version of your presentation uploaded to the proper location on D2L in 11x17 format. Include bibliography of all sources cited and consulted (printed for hand-in and in pdf listed above). You will be graded on the quality of the analysis you have done, the sophistication of the means of conveying that information, and the quality of the visual presentation you have created.

A2 Case Study Analysis .................................................................[intl. teams]

In this assignment you will be responsible for showing the analysis of your case study through a very attractive graphic presentation. The goal for this case study is to analyze an architectural project according to its typology. You are encouraged to find a Library with similar conditions as the one we are working with, in any place and even from any other time. Then you will study it
looking first at the overall character of the project and then getting into the systems, structure, program, relationships to context, circulations, materiality, construction, spatial composition, etc. The exercise is about finding the lessons embedded in the project and drawing them out, with your own diagrams and schemes, for reference in the studio this semester. This presentation will center on a series of diagrams of the critical information about the case study, but will also include some text, photographs, technical drawings, etc. that are necessary to fully explain the work. The investigation should focus on the project, but you are responsible for also investigating the architect and his/her/their other works to see what else surrounding the case study has the ability to bring some critical information into the studio, as well as about the historical and geographical conditions which could provide with specific data about the case.

What is very important is to present transcendent and useful facts about the project and focus your presentation on the analysis of that information. It should also be noted that you are responsible for finding credible sources for your research. This research should start in the stacks of the library and/or the Avery index for architectural periodicals and with credible architectural sources on the web. These presentations should be concise, but thorough and graphically sophisticated.

References:

- http://partidiagrams.tumblr.com

FOR REVIEW
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**A3 Structural Systems**...[SIU teams]

The concept known as structural system refers to a specific load-resisting arrangement of those elements comprehended on a physical assembly. The structural system transfers loads through interconnected physical components or members of a whole which have been specifically designed for this purpose. Most of them have been created as an imitation of natural systems, from sea shells to tree leaves and from insects’ frames to termite colonies, as well known examples.

Commonly used structures can be classified into five major categories (although are others not necessarily among them), depending on the type of primary stress that may arise in the members of the structures under major design loads. However any two or more of the basic structural types described in the following may be combined in a single structure, such as a building or a bridge in order to meet the structures functional requirements.

**A. TENSILE STRUCTURES:** Members of tensile structures are subjects to pure tension under
the action of external loads. Because the tensile stress is uniformly distributed over the cross-sectional area of members, the material of such a structure is utilized in the most efficient manner.

B. COMPRESSION STRUCTURES: Compression structures develop mainly compressive stresses under the action of axial loads. Because compressive structures are susceptible to buckling or instability, the possibility of such a failure should be considered in their designs if necessary, adequate bracing must be provided to avoid such failures.

C. TRUSSES: Trusses are composed of straight members connected at their ends by hinged connections to form a stable configuration. Because of their light weight and high strength, are among the most commonly used type of structure.

D. SHEAR STRUCTURES: These are structures such as reinforced concrete shear walls, which are used in multistory buildings to reduce lateral movements due to wind loads and earthquake excitations. Shear structures develop mainly in-plane shear with relatively small bending stresses under the action of external loads.

E. BENDING STRUCTURES: Bending structures develop mainly bending stresses under the action of external loads. The shear stresses associated with the changes in bending moments may also be significant should be considered in their designs.

On this analysis task you are asked to fully investigate a specified structural system from what it is being used contemporarily around the world. You will work in your groups for this assignment, with each of the groups responsible for presenting a different system to the rest of the studio.

ASSIGNMENTS

Group 1- Wood Platform Framing:
The fitting together of wooden pieces to give a structure support and shape, commonly named as framing members. Timber framing was superseded by balloon framing beginning in the 1830s in America which is made up of many light-weight members. Platform framing superseded balloon framing and is the standard wooden framing method today.

Group 2- Wood Post and Beam:
A method of building with heavy timbers rather than dimensional lumber such as 2"x4"s. Traditional timber framing is the method of creating structures using heavy squared-off and carefully fitted and joined timbers with joints secured by large wooden pegs.

Group 3- Cross Laminated Timber:
With the use of cross laminated timber systems high-rise building are possible, thereby improving well-being, affordability, carbon emissions, and sustainability issues. Research cross laminated timber prefab design methods.

Group 4- Steel Frame:
A building technique with a "skeleton frame" of vertical steel columns and horizontal I-beams, constructed in a rectangular grid to support the floors, roof and walls of a building which are all attached to the frame. The development of this technique made the construction of the skyscraper possible.
Group 5- Lightweight steel Frame:
Steel-framed construction has many advantages including being durable, stable and termite-proof. Although steel production requires large amounts of energy, it has proven that it is 100% recyclable and current framing products often include recycled content.

Group 6- Steel Joists:
A lightweight steel truss system consisting, in the standard form, of parallel chords and a triangulated web system, proportioned to span between bearing points.

Group 7- Steel Space Frame:
A truss-like, lightweight rigid structure constructed from interlocking struts in a geometric pattern. It is strong because of the inherent rigidity of the triangle.

Group 8- Poured Concrete Slab:
There are two versions: the flat plate is a two-way reinforced concrete framing system utilizing a slab of uniform thickness, the simplest of structural shapes. The flat slab is a two-way reinforced structural system that includes either drop panels or column capitals at columns to resist heavier loads and thus permit longer spans.

Group 9- Post-Tensioned Concrete Frame:
Post-tensioned slabs using high strength tensioned steel strands to compress the slabs, keeping the majority of the concrete in compression.

Group 10- Precast Concrete Frame:
Precast concrete structures behave in a different way to those where the concrete is cast in-situ, with the components subject to different forces and movements. These components are manufactured by industrial methods based on mass production in order to build a large number of buildings in a short time at low cost.

FOR REVIEW
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A4 Building Materials, Assemblies, & Envelope Systems .......[SIU teams]

Materials for construction are many, as they have been used for millennia. Aside from environmentally occurring materials, many man-made products are now in use, some more and some less synthetic. The manufacture of building materials is nowadays an established industry in many developed countries and the use of these materials is widely marketed in different scales as well as typically segmented into specific specialty trades, such as structure, envelope, carpentry, insulation, plumbing, roofing, etc. An assembly is a specific junction put together from manufactured parts to produce desirable results on the construction of a building. A building envelope is the physical separators between the conditioned and unconditioned environment of a building including the resistance to air,
water, heat, light, and noise transfer.

On this analysis task you are intended to fully investigate a specified area of this section and how it is currently being used as part of architectural design. You will work in your groups for this assignment, with each of the groups responsible for presenting a different system to the rest of the studio.

Sustainable design includes the informed selection of materials and products to reduce product-cycle environmental impacts, improve performance, and optimize occupant health and comfort. Describe the project’s material selection criteria, considerations and constraints. What efforts were made to reduce the amount of material waste and the environmental impact of materials over their lifetime? Discuss specific materials used.

**Graphic:** Wall section of the building envelope design and either a hygro-thermal analysis or life cycle assessment.

**ASSIGNMENTS**

**Group 1- Fired Bricks and Clay Blocks:**
The artificial rock that man invented since unmemorable eras. It consists on baking clay forms to harden them and make them stronger and more long lasting. In India there are still standing fired brick structures over 4000 years old.

**Group 2- Concrete:**
A composite building material made from the combination of aggregate and a binder such as cement. The most common form of concrete is Portland cement concrete, which consists of mineral aggregate (generally gravel and sand), portland cement and water.

**Group 3- Fabric:**
The tent is the home of choice among nomadic groups all over the world. Two well-known types include the conical teepee and the circular yurt. Modern buildings can be made of flexible material such as fabric membranes, and supported by a system of steel cables, rigid or internal, or by air pressure.

**Group 4- Glass:**
Clear windows have been used since the invention of glass to cover small openings in a building. Glass panes provided humans with the ability to both let light into rooms while at the same time keeping inclement weather outside.

**Group 5- Metal:**
Metal is used as structural framework for larger buildings such as skyscrapers, or as an external surface covering. There are many types of metals used for building. Corrosion is metal's prime enemy when it comes to longevity.

**Group 6- Plastic:**
Plastics vary immensely in heat tolerance, hardness, and resiliency. Combined with this adaptability, the general uniformity of composition and lightness of plastics ensures their use in almost all industrial applications today.

**Group 7- Materials & Construction:** Materials selection criteria, considerations, and
constraints for: optimizing health, durability, maintenance, and energy use reducing the
impacts of extraction, manufacturing, and transportation

**Group 8 - Materials & Construction:** Enclosure performance in relation to air, water and
thermal characteristics.

**Group 9 - Materials & Construction:** Consideration of life cycle impacts and results of life
cycle assessment.

**Group 10 – Materials & Construction:** Construction waste reduction plans; strategies to
promote recycling during occupancy.

**FOR REVIEW**
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cited and consulted (printed for hand-in and in pdf listed above). You will be graded on the
quality of the analysis you have done, the sophistication of the means of conveying that
information, and the quality of the visual presentation you have created.

**A5 Environmental Systems** .................................................................[intl. teams]

The natural environment encompasses all living and non-living things occurring naturally on
Earth, thus it is the environment that encompasses the interaction of all living species. An
environmental system may be understood in an ecological sense as the set of interactions
between its components within a specific context and in interdepending relationship.
Subject to the type of system, it may interact with the environment by exchanging mass,
energy (including heat and work), linear momentum, angular momentum, electric charge,
or other conserved properties. A system is the part of the universe that is being studied,
while the environment is the remainder of the universe that lies outside the boundaries of
the system. Urie Bronfenbrenner’s ecological systems theory —also called development in
context or human ecology theory— identifies five environmental systems with which an
individual interacts: microsystem, mesosystem, exosystem, macrosystem and
chronosystem. The person's own biology may be considered part of the microsystem; thus
that theory has sometimes been called "Bio-Ecological Systems Theory", and it is always
understood as part of a larger system, the environment.

On this analysis task you are intended to fully investigate a specified area on the
environmental systems as it is referred to architectural design. You will work in your groups
for this assignment, with each of the groups responsible for presenting a different system
to the rest of the studio.

Sustainable design conserves resources and maximizes comfort through design adaptations
to site-specific and regional conditions. Describe how the building reacts to the local
climate and site with an emphasis on occupant comfort. Discuss how the building massing
and fenestration relates to the sun path and the prevailing winds. Describe how
sustainability strategies are incorporated into the overall design strategy. What are
the major environmental issues and goals?
Sustainable design conserves water and protects and improves water quality. How does the design manage storm water? How does the design conserve potable water? How is the project innovative in the way that it uses and treats water?

ASSIGNMENTS

**Group 1- Bioclimatic Design:** project response to local climate, sun path, prevailing breezes, soil, hydrology, and seasonal and daily cycles through passive design strategies.

**Group 2- Bioclimatic Design:** Description of internal versus external building loads.

**Group 3- Bioclimatic Design:** Design strategies that reduce/eliminate the need for non-renewable energy resources. How these strategies specifically shaped the plan, section, and massing.

**Group 4- Bioclimatic Design:** Design strategies that reduce/eliminate the need for non-renewable energy resources. How these strategies specifically affected project placement, orientation, and shading.

**Group 5- Water Cycle:** How building and site design strategies manage site water and drainage. Design strategies that capitalize on renewable water sources (i.e. precipitation) on site.

**Group 6- Water Cycle:** Water-conserving landscape and building design strategies. Reuse strategies for water including use of rainwater, graywater, and wastewater.

**Group 7- Design & Innovation:** Key environmental issues; how and why they became important priorities.

**Group 8- Design & Innovation:** Key ecological goals and concepts for your project and how they shaped your thinking. How these goals and concepts will be expressed in the design.

**Group 9- Design & Innovation:** Sustainable design innovations. How sustainability measures will lead to a better overall project design.

**Group 10- Design & Innovation:** Process of program analysis; resource efficiencies realized by innovative programming. Efforts to “right size” the project and to reduce unnecessary square footage.

FOR REVIEW

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Lighting design is a field within architecture and architectural engineering that concerns itself primarily with the illumination of buildings and other spaces, indoors as well as outdoors. The objective of architectural lighting design is to obtain sufficient light for the purposes of the building, balancing factors of initial and operating cost, appearance, and energy efficiency; but specific effects are also a predominant purpose for these ventures. Lighting designers are often specialists who must understand the physics of light production and distribution, and the physiology and psychology of light perception by humans. Visual comfort is measured by illumination levels and distribution; this includes not only the brightness of light sources, but also the colors in the light, and how well light is spread around spaces. The goal is to illuminate tasks without using too much energy or causing glare. Good lighting design achieves visual comfort by modeling and simulating daylight and artificial light. The sun is predictable and daylight can be a very reliable source of light. Sunlight, views, and daylight are different though, and need to be carefully managed. Daylighting, or using sunlight to illuminate a building, is an effective way to both decrease a building’s energy use and make the interior environment more comfortable for people. In commercial buildings, electric lighting accounts for 35 - 50% of total electrical energy consumption. Strategic use of daylight can reduce this energy demand. It’s been said recently that daylight also improves people's comfort and productivity.

On this analysis task you are intended to fully investigate a specified area of lighting which is currently being used as part of architectural design. You will work in your groups for this assignment, with each of the groups responsible for presenting a different system to the rest of the studio.

Sustainable design creates comfortable interior environments that provide daylight, views, and fresh air. Discuss design strategies that relate to daylighting, electric lighting, ventilation, indoor air quality, views, and individual controllability. **Graphic:** Model photos, drawings or diagrams of daylight and ventilation strategies; test models.

**ASSIGNMENTS**

**Group 1- Lighting Types and Methods:**
Lighting is classified by intended use as general, accent, or task lighting, depending largely on the distribution of the light produced by the fixture.

**Group 2- Indoor and Outdoor Lighting/Special Uses:**
The difference between lighting interior and exterior spaces is manifest, so the fixtures to do it. The search for effects, ambiences, and much kind of settings has developed a wide variety of tools and devices. There are also special uses that demand specific tailored solutions.

**Group 3- Measurements and Photometric Studies:**
Photometry is the science of the measurement of light, in terms of its perceived brightness to the human eye. In modern photometry, the radiant power at each wavelength is weighted by a luminosity function that models human brightness sensitivity.
**Group 4- Shadows and Color Properties:**
During the daytime, a shadow cast by an opaque object illuminated by sunlight has a bluish tinge. The opaque object is able to block the light of the sun, but not the ambient light of the sky which is blue as the atmosphere molecules scatter blue light more effectively. As a result, the shadow appears bluish. However, with artificial light results are widely multifarious.

**Group 5- Energy and Lighting Control Systems:**
Power efficiently management and distribution is widely developed nowadays. Lighting control systems serve to provide the right amount of light where and when it is needed. They are intelligent network based lighting control solution that incorporate communication between various system inputs and outputs related to lighting control with the use of one or more central computing devices. Design strategies for ventilation, indoor air quality, and personal control systems.

**Group 6- Health Effects and Light Pollution:**
Some people have conditions that react to light. They might be affected by the growing use of energy saving lamps and the development of new lighting technologies by this shift. Light pollution is the excessive, misdirected, or obtrusive use of artificial light.

**Group 7- Led Lamps and New Technologies:**
New and accelerated developing technologies on lighting have arrived on today’s market opening all kind of new uses and applications. From sensors to self-maintaining devices as well as the use of diodes and other electronic components we are entering into a novel “enlightening” era.

**Group 8 – Light & Air:** Design strategies for daylighting, task lighting, and views.

**Group 9- Light & Air:** How the project’s design enhances users’ connectedness to nature.

**Group 10 – Light & Air:** Design team approach to integration of natural systems and appropriate technology.

FOR REVIEW
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**A7 Energy Flows, Energy Future, & Long Life.................................[intl. teams]**

Sustainable design conserves energy and resources and reduces the carbon footprint while improving building performance and comfort. Sustainable design anticipates future energy sources and needs. How does the design seek to decrease the total energy use and carbon footprint of the building? Emphasize strategies to reduce heating and cooling loads, reduce peak electricity demand, reduce plug loads, generate onsite energy, and anticipate future carbon free energy sources.
Sustainable design seeks to enhance and increase ecological, social, and economic values over time. Describe how the design promotes long-term flexibility, adaptability, and resilience.

ASSIGNMENTS

**Group 1 - Energy Flows & Energy Future:** How the design reduces energy loads for heating, cooling, lighting, and water heating.

**Group 2 - Energy Flows & Energy Future:** How the design and integration of building systems contributes to energy conservation and reduced use of fossil fuels, reduces greenhouse gas emissions and other pollution improves building performance and comfort.

**Group 3 - Energy Flows & Energy Future:** Use of on-site renewable and alternative energy systems.

**Group 4 - Energy Flows & Energy Future:** Anticipation of future and carbon neutral fuel sources.

**Group 5 - Energy Flows & Energy Future:** Strategies to reduce peak electrical demand.

**Group 6 – Energy Flows & Energy Future:** How the design remains functional during power outages or interruptions in fuel supply.

**Group 7 – Long Life:** How the project was designed to promote long-term flexibility and adaptability.

**Group 8 – Long Life:** Anticipated project service life; description of components designed for disassembly.

**Group 9 - Long Life:** Materials, systems, and design solutions developed to enhance versatility, durability, and adaptive reuse potential.

**Group 10 - Long Life:** How the project anticipates and celebrates weathering over time.

FOR REVIEW

As a group you will write a dossier containing the Sustainability Measure you get from the raffle and apply it to your Projects, according to what it is established in the appendix (200 words maximum and graphics).

A8 Building Project Design & Development ............................................. [individual]

This is the main component of your semester productions. The last six assignments have been developed along the last weeks but you are intended to start the analysis and development of this assignment since the semester’s very first week. Thus, be aware that you will be asked to move through this project fairly quickly as there is a great deal of work to accomplish by the end of the semester in order to generate a truly comprehensive design. However, consider that every piece of information produced for you and your classmates during the other assignments is very important as background data for this your individual project. Do not feel that every decision you make during design process is set in
stone. You can manipulate along the way as the design becomes more detailed and more questions are answered. What you do not want either is to scrap an idea entirely and start over. Treasure the complexity of this assignment and quickly establish some parameters for working on the project through sketching, quick models and diagrams.

You will be asked throughout the semester to produce drawings, diagrams, renderings, and models as well as a wide variety of other odds and ends for this assignment. The presentation of these materials will vary based on the situation, but all work should be concise, but thorough and at a bare minimum clear and easy to understand. Some situations such as major pinups and reviews will require a much higher level of sophistication in the graphic presentation of the work.

Very important: do not glue yourself to the computer and stay exclusively virtual. Paper and pencil are valuable tools to create many of your best proposals. There is a time and place for quick sketches on trace and hand-cut study models; there is also a time and place for cad drawings and Revit models. We expect you to jump back and forth between a variety of media and, hopefully, mix media in the representation of your work. Iterative design process is also of prime importance here in this project. You cannot sit down and expect the first thing you draw or make to be right. Two, three, four, sometimes dozens of iterations of a plan, a detail, a wall section must be explored in order to find the one that is truly successful in the project. Every week you should be able to present to be reviewed a written/drawn exploration of your project that should be recorded in your sketchbook. It should continually evolve in your sketchbook throughout the semester. Along with that statement should be always a parti diagram that establishes the overall conceptual design of your individual project.

Along the way, you also must clearly demonstrate what you learned from the site analysis, the program, and the context, and what you consider to be the critical decisions for the planning of your project. This is a proposal-based studio; the only thing you are expected to produce is your own proposals.

Sustainable design values the unique cultural and natural character of a given region. How does your design respond to the region where it’s located? How does your design promote regional and community connectivity? What steps are taken to encourage alternative transportation?

- How does the design relates to the local context and to larger regional issues,
- How does the design promote regional and community connectivity,
- How does the design promote a sense of place, public space and community, interaction
- How does the design educate its users about the environmental strategies it employs,
- Efforts to provide for those using public transportation alternatives,
- Site selection criteria to reduce automobile use,
- How was mandated parking reduced.

- This syllabus borrows heavily from the 2014-2015 ACSA Steel Competition & the 2014-2015 AIA COTE/ACSA Student Design Competition.
4.1 ASSIGNMENTS’ PERCENTAGES OF TOTAL GRADING

A1 .............................................. 7.5 %
A2 .............................................. 7.5 %
A3 .............................................. 7.5 %
A4 .............................................. 5 %
A5 .............................................. 7.5 %
A6 .............................................. 7.5 %
A7 .............................................. 7.5 %
A8 (Preliminary) ..................... 5%
A8 (pin Up) ............................... 6%
A8 (Pre Delivery) ....................... 7%
A8 (Final) ................................. 32%

100 %
A8 - REQUIRED DOCUMENTS FOR REVIEW

1. **Site Plan**: Scale 1/16"=1'-0". Show plot surroundings, buildings, streets, zoning, etc. making clear reference of project’s influence within the zone.

2. **Ground Level Plan**: Scale ⅛"=1'-0". Show project floor plan and buildings’ interiors, public stairways and rest rooms; public areas, open spaces, etc. Label all spaces. Indicate pedestrian walkways and landscaping. Indicate north and graphic scale.

3. **Other levels Plans**: Scale ⅛"=1'-0" Label all spaces. Show windows and doors, stairs, elevators, etc.

4. **Roof Plan**: Scale ⅛"=1'-0". Show all included in Ground Level plan but interiors, plus buildings’ roofs and the terrace areas’ coverings, with the addition of shadows on the ground.

5. **Two building sections**: Scale ¼"=1’-0” One longitudinal and the other transverse (orthogonal to each other) showing basement levels, all cut elements, adjacent streets and other external references. Sections should delineate use of natural light, energy conservation methods and appropriate scale of spaces.

6. **Two wall sections**: scale ¼” = 1’-0”. One longitudinal & transverse wall section from the bottom of the footer to the top of the roof.

7. **Four elevations**: Scale ⅛" = 1'-0" where better showing the project’s spirit.

8. **Project model**: Scale ¼" = 1’-0” physical model that thoroughly illustrates the scope and intent of your design solution. The model should allow for a clear illustration of the contextual relationship of your project to the site and adjacent structures by the use of a shared context Site Model that allows each student to drop in their individual project. This last built by all studio students.

9. **Two exterior site/building perspectives & two interior perspectives (minimum)**: These perspective views should capture the essence of the project as a whole within specific sights.

   In your documents you must indicate the following:
   - Building materials.
   - Structural solution, system and subsystems.
   - Lighting solution, system and subsystems.
   - Conceptual provisions for heating and cooling system.
   - Building envelope and enlarged details.
A8 - GRADING CRITERIA

1. Problem statements and conceptual solutions.

2. Program Requirements
   a. Development of All Programmed Spaces.
   b. Conformance to Square Footage Requirements.
   c. Compliance with Required Spatial Relationships.

3. Design Logic
   b. Spatial Relationships/Proportions/Adjacencies.
   c. Functional relationship to surroundings.
   d. Compatibility to Existing Context, Site and Climate.
   e. Natural Lighting and Ventilation.
   f. Environmental issues.

4. Code Compliance
   a. Handicapped Accessibility Requirements.
   b. Egress pathways, exits and stairs.

5. Technical Aspects
   a. Materials Selection and Wall, Floor, and Roof Assemblies.
   b. Structural Systems, their Appropriateness and Integration.
   c. Mechanical Systems, rain water collection, yields and ducts.

6. Drawings and other graphics, Model (fit at Site Model).

7. Completeness and Clarity of Presentation.
PART TWO (II): SECTION 1-STUDENT PERFORMANCE — EDUCATIONAL REALMS & STUDENT PERFORMANCE CRITERIA

The accredited degree program must demonstrate that each graduate possesses the knowledge and skills defined by the criteria set out below. The knowledge and skills are the minimum for meeting the demands of an internship leading to registration for practice. The school must provide evidence that its graduates have satisfied each criterion through required coursework. If credits are granted for courses taken at other institutions or online, evidence must be provided that the courses are comparable to those offered in the accredited degree program.

The criteria encompass two levels of accomplishment:

• Understanding - The capacity to classify, compare, summarize, explain and/or interpret information.

• Ability - Proficiency in using specific information to accomplish a task, correctly selecting the appropriate information, and accurately applying it to the solution of a specific problem, while also distinguishing the effects of its implementation.

The NAAB establishes performance criteria to help accredited degree programs prepare students for the profession while encouraging educational practices suited to the individual degree program. In addition to assessing whether student performance meets the professional criteria, the visiting team will assess performance in relation to the school's stated curricular goals and content. While the NAAB stipulates the student performance criteria that must be met, it specifies neither the educational format nor the form of student work that may serve as evidence of having met these criteria. Programs are encouraged to develop unique learning and teaching strategies, methods, and materials to satisfy these criteria. The NAAB encourages innovative methods for satisfying the criteria, provided the school has a formal evaluation process for assessing student achievement of these criteria and documenting the results.

For the purpose of accreditation, graduating students must demonstrate understanding or ability as defined below in the Student Performance Criteria (SPC) assigned to this course:

ARC 452 - Student Performance Criteria: This class meets 2009 NAAB requirements for Architectural Education Accreditation where students must demonstrate awareness, understanding, or ability in the following areas:

Realm A: Critical Thinking and Representation: Architects must have the ability to build abstract relationships and understand the impact of ideas based on research and analysis of multiple theoretical, social, political, economic, cultural and environmental contexts. This ability includes facility with the wider range of media used to think about architecture including writing, investigative skills, speaking, drawing and model making. Students’ learning aspirations include:

- Being broadly educated
- Recognizing the disparate needs of client, community, and society.

- A.2. Design Thinking Skills: Ability to raise clear and precise questions, use abstract ideas to interpret information, consider diverse points of view, reach well-reasoned conclusions, and test alternative outcomes against relevant criteria and standards.
- A.4. Technical Documentation: Ability to make technically clear drawings, write outline specifications, and prepare models illustrating and identifying the assembly of materials, systems, and components appropriate for a building design.
- A.5. Investigative Skills: Ability to gather, assess, record, apply, and comparatively evaluate relevant information within architectural coursework and design processes.
- A.7. Use of Precedents: Ability to examine and comprehend the fundamental principles present in relevant precedents and to make choices regarding the incorporation of such principals into architecture and urban design projects.
- A.9. Historical Traditions and Global Culture: Understanding of parallel and divergent canons and traditions of architecture, landscape and urban design including examples of indigenous, vernacular, local, regional, national settings from the Eastern, Western, Northern, and Southern hemispheres in terms of their climatic, ecological, technological, socioeconomic, public health, and cultural factors.
Realm B: Integrated Building Practices, Technical Skills and Knowledge: Architects are called upon to comprehend the technical aspects of design, systems and materials, and be able to apply that comprehension to their services. Additionally they must appreciate their role in the implementation of design decisions, and the impact of such decisions on the environment. Students learning aspirations include:

- Creating building designs.
- Comprehending concepts.
- Applying principles of sustainable design.

B. 1. Pre-Design: Ability to prepare a comprehensive program for an architectural project, such as preparing an assessment of client and user needs, an inventory of space and equipment requirements, an analysis of site conditions (including existing buildings), a review of the relevant laws and standards and assessment of their implications for the project, and a definition of site selection and design assessment criteria.

B. 2. Accessibility: Ability to design sites, facilities, and systems to provide independent and integrated use by individuals with physical (including mobility), sensory, and cognitive disabilities.

B. 3. Sustainability: Ability to design projects that optimize, conserve, or reuse natural and built resources, provide healthful environments for occupants/users, and reduce the environmental impacts of building construction and operations on future generations through means such as carbon-neutral design, bioclimatic design, and energy efficiency.

B. 4. Site Design: Ability to respond to site characteristics such as soil, topography, vegetation, and watershed in the development of a project design.

B. 5. Life Safety: Ability to apply the basic principles of life-safety systems with an emphasis on egress.

B. 6. Comprehensive Design: Ability to produce a comprehensive architectural project that demonstrates each student’s capacity to make design decisions across scales while integrating the following SPC:


B. 8 Environmental Systems: Understanding the principles of environmental systems’ design such as embodied energy, active and passive heating and cooling, indoor air quality, solar orientation, daylighting and artificial illumination, and acoustics; including the use of appropriate performance assessment tools.

B. 9. Structural Systems: Understanding of the basic principles of structural behavior in withstanding gravity and lateral forces and the evolution, range, and appropriate application of contemporary structural systems. (In conjunction with Structures III)

B. 10. Building Envelope Systems: Understanding of the basic principles involved in the appropriate application of building envelope systems and associated assemblies relative to fundamental performance, aesthetics, moisture transfer, durability, and energy and material resources.

B. 11. Building Service Systems: Understanding of the basic principles and appropriate application and performance of building service systems such as plumbing, electrical, vertical transportation, security, and fire protection systems.

B. 12. Building Materials and Assemblies: Understanding of the basic principles utilized in the appropriate selection of construction materials, products, components, and assemblies, based on their inherent characteristics and performance, including their environmental impact and reuse.

Realm C: Leadership and Practice: Architects need to manage, advocate, and act legally, ethically and critically for the good of the client, society and the public. This includes collaboration, business, and leadership skills. Student learning aspirations include:

- knowing societal and professional responsibilities.
- comprehending the business of building.
- collaborating and negotiating.
- collaborating and negotiating.
- entering the practice of architecture.

C. 3 Client Role in Architecture: Understanding of the responsibility of the architect to elicit, understand, and reconcile the needs of the client, owner, user groups, and the public and community domains.

C. 7. Legal Responsibilities: Understanding of the architect’s responsibility to the public and the client as determined by registration law, building codes and regulations, professional service contracts, zoning...
and subdivision ordinances, environmental regulation, and historic preservation and accessibility laws.

**Quigley Hall Emergency Response Procedures -**

Southern Illinois University Carbondale is committed to providing a safe and healthy environment for study and work. Because some health and safety circumstances are beyond our control, we ask that you become familiar with the SIUC Emergency Response Plan and Building Emergency Response Team (BERT) program. Emergency response information is available on posters in buildings in Quigley Hall and elsewhere on campus, available on the BERT’s website at [www.bert.siu.edu](http://www.bert.siu.edu), Department of Public Safety’s website [www.dps.siu.edu](http://www.dps.siu.edu) (disaster drop down) and in the Emergency Response Guidelines pamphlet. Know how to respond to each type of emergency.

Instructors will provide guidance and direction to students in the classroom in the event of an emergency affecting your location. **It is important that you follow these instructions and stay with your instructor during an evacuation or sheltering emergency.** The Building Emergency Response Team will provide assistance to your instructor in evacuating the building or sheltering within the facility.

If an evacuation of Quigley Hall is required during an emergency, ALL School of Architecture students, faculty, and staff (from all three programs) are to gather ASAP after exiting in the grassed area east of the Quigley Courtyard and covered walkway area to determine if there are people unaccounted for at that particular time. There are four SoA faculty members that are part of the SIUC Quigley Hall BERT Team (Michael Brazley, Scott Frisch, Dave White, and Nadine Wojnarowski) who will be facilitating the necessary emergency procedures. There are **BERT Posters** located in numerous public areas throughout Quigley with Quigley Team emergency phone numbers.

**Do not hesitate to call 911** if you have any sense of emergency and there isn’t a faculty or staff person available to immediately assist – There are highly qualified and prepared professionals to make a response decision and to give you advice over the phone.

**QUIGLEY HALL EMERGENCY RESPONSE MEETING AREAS**

<table>
<thead>
<tr>
<th>PROGRAM</th>
<th>AREA</th>
<th>LOCATION</th>
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</thead>
<tbody>
<tr>
<td>Food and Nutrition</td>
<td>1</td>
<td>Woody Hall grassed area West of Quigley Main Entry</td>
</tr>
<tr>
<td>Child Development Laboratory</td>
<td>2</td>
<td>North Side Quigley beyond Fenced Area</td>
</tr>
<tr>
<td>Social Work</td>
<td>3</td>
<td>Grassed Area NE of Loading Dock and Auditorium</td>
</tr>
<tr>
<td>School of Architecture</td>
<td>4</td>
<td>Grassed Area East of Quigley Patio and the Covered Walkway</td>
</tr>
<tr>
<td>College of Education - Pre-School</td>
<td>5</td>
<td>Gragged Walkways Area beyond South Entry</td>
</tr>
<tr>
<td>General Classrooms &amp; Auditorium</td>
<td>1, 3, &amp; 4</td>
<td>Please instruct those outside faculty, students, and visitors during an emergency</td>
</tr>
</tbody>
</table>
IMPORTANT DATES *
Semester Class Begins ............................................. 01/20/2015
Last day to add a class (without instructor permission): .......... 01/25/2015
Last day to withdraw completely and receive a 100% refund: ... 02/01/2015
Last day to drop a course using SalukiNet: ..................... 04/05/2015
Last day to file diploma application (for name to appear in Commencement program): ................................. 03/13/2015
Final examinations: ..................................................... 05/11-05/15/2015

Note: For outreach, internet, and short course drop/add dates, visit Registrar’s Academic website: http://www.siu.edu/sreg

SPRING SEMESTER HOLIDAYS
Martin Luther King, Jr.'s Birthday 01/19/2015
Spring Vacation 03/07 - 03/13/2015

WITHDRAWAL POLICY – Undergraduate only
Students who officially register for a session may not withdraw merely by the stopping of attendance. An official withdrawal form needs to be initiated by the student and processed by the University. For the proper procedures to follow when dropping courses and when withdrawing from the University, please visit http://register.siu.edu/pdf/ugradcatalog134.pdf

INCOMPLETE POLICY – Undergraduate only
An INC is assigned when, for reasons beyond their control, students engaged in passing work are unable to complete all class assignments. An INC must be changed to a completed grade within one semester following the term in which the course was taken, or graduation, whichever occurs first. Should an student fail to complete the course within the time period designated, that is, by no later than the end of the semester following the term in which the course was taken, or graduation, whichever occurs first, the incomplete will be converted to a grade of F and the grade will be computed in the student’s grade point average. For more information please visit: http://register.siu.edu/gmdels/incomplete.html

REPEAT POLICY
An undergraduate student may, for the purpose of raising a grade, enroll in a course for credit no more than two times (two total enrollments) unless otherwise noted in the course description. For students receiving a letter grade of A, B, C, or D, the course repetition must occur at Southern Illinois University Carbondale. Only the most recent (last) grade will be calculated in the overall GPA and count toward honors earned. See full policy at http://register.siu.edu/pdf/ugradcatalog134.pdf

GRADUATE POLICIES
Graduate policies often vary from Undergraduate policies. To view the applicable policies for graduate students, please visit: http://gradschool.siu.edu/about-us/grad-catalog/index.html

DISABILITY POLICY
Disability Support Services provides the required academic and programmatic support services to students with permanent and temporary disabilities. DSS provides centralized coordination and referral services. To utilize DSS services, students must come to the DSS to open cases. The process involves interviews, reviews of student-supplied documentation, and completion of Disability Accommodation Agreements. http://disabilityservices.siu.edu/

PLAGIARISM CODE
http://register.siu.edu/PoliciesAndHandouts/PoliciesAndHandouts.aspx?DocID=42176

MORRIS LIBRARY HOURS
http://www.lib.siu.edu/about

SAFETY AWARENESS FACTS AND EDUCATION
Title IX makes it clear that violence and harassment based on sex and gender is a Civil Rights offense subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, etc. If you or someone you know has been harassed or assaulted, you can find the appropriate resources here: http://safe.siu.edu

SALUKI CARES
The purpose of Saluki Cares is to develop, facilitate and coordinate a university-wide program of care and support for students in any type of distress—physical, emotional, financial, or personal. By working closely with faculty, staff, students and their families, SIU will continue to display a culture of care and demonstrate to our students and their families that they are an important part of the community. For information on Saluki Cares (618) 453-5714, or salukicas@sium.edu, http://salukicas.siu.edu/index.html

EMERGENCY PROCEDURES
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INCLUSIVE EXCELLENCE
SIU contains people from all walks of life, from many different cultures and subcultures, and representing all strata of society: nationalities, ethnicities, lifestyles, and affiliations. Learning from and working with people who differ is an important part of education as well an essential preparation for any career. For more information please visit: http://www.inclusiveexcellence.siu.edu/

LEARNING AND SUPPORT SERVICES
Help is within reach. Learning support services offers free tutoring on campus and much labs. To find more information please visit the Center for Learning and Support Services website: Tutoring: http://tutoring.siu.edu/
Math Labs: http://tutoring.siu.edu/math-tutoring/index.html

WRITING CENTER
The Writing Center offers free tutoring services to all SIU students and faculty. To find a Center or Schedule an appointment please visit: http://write.siu.edu/

AFFIRMATIVE ACTION & EQUAL OPPORTUNITY
Our office’s main focus is to ensure that the university complies with federal and state equity policies and handles reporting and investigating of discrimination cases. For more information visit: http://diversity.siu.edu/

Additional Resources Available:
SALUKINET: https://salukinet.siu.edu/sp/home/displayLogin
ADVISEMENT: http://advisement.siu.edu/
SIU ONLINE: http://online.siu.edu/

Spring 2015 QORsolde