March 12, 2020

NAAB Board of Directors
National Architectural Accrediting Board
1101 Connecticut Avenue NW, Suite 410
Washington, DC 20036
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info@naab.org

Subject: Response to the final VTR 2019

Esteemed Members of the NAAB Board of Directors,

The School of Architecture & Design at the Lebanese American University would like to thank you for your support throughout this process, in our efforts to seek NAAB Accreditation. It has indeed been a long journey that has positively impacted our Architecture Program, putting it among the very best in the region. We would also like to thank all the visiting teams who participated in this process, especially the last team chaired by Prof. Brian Kelly for their professional overview, their encouragement and positive feedback.

Our response to the VTR will briefly address the conditions marked as not met, highlighting the School's plan to tackle these issues. We are confident that with all the provided resources, the School will be able to devise ways to resolve them in the near future. In fact, some of the assessed courses where the conditions were not yet met had only been recently introduced into the curriculum, whereas others where the team rightly perceived an inconsistency among different sections of the same course are in the process of being resolved through a constructive coordination process that is being implemented across the board. This process is already being updated to conform to the new NAAB 2020 Conditions and Procedures.

I.1.3 Social Equity

2019 Analysis/Review: The program did not share a policy on diversity and inclusion with the NAAB team. Nor did the program provide a plan for maintaining or increasing the diversity of its faculty, staff, and students during the next two accreditation cycles as compared with the existing diversity of the faculty, staff, and students of the institution.
Despite a lack of a diversity plan, the team observed that the faculty and leadership of the school remain male dominated, but limited progress has been made in terms of appointments of females to faculty and leadership positions. Additionally, LAU has (since the last visit in 2017) hired a Title IX coordinator.
The program documented institutional-, college-, and program-level policies are in place regarding Equal Employment Opportunity/Affirmative Action (EEO/AA).

***SArD Response*:** The Lebanese American University as an institution is fully committed to making diversity an integral part of its mission. The School of Architecture & Design follows the University rules and regulations in terms of 'Social Equity' which is

usually covered by the NEASC (New England Association of Schools and Colleges) accreditation of the institution.

A major step towards achieving social equity at LAU was the establishment of the Title IX office in November 2018. The LAU's Title IX Office focuses on building on the university's long-term commitment to equity, diversity, and inclusion through in-person and on-line training (students, staff, and faculty), awareness raising campaigns, revisiting policies and procedures, and conducting investigations and implementing sanctions (where necessary) regarding misconduct that undermines equity, diversity, and inclusion. While Title IX is focused on eliminating gender- and sex-related discrimination at the university, its scope necessarily encompasses a broad understanding of equity, diversity, and inclusion in education and employment. To this end, some of the projects that the Title IX office is working on include: revising parental leave policies to include greater flexibility for parents of young children (and not only focusing on mothers), the creation of lactation rooms on both campuses to support nursing even after mothers have returned to work, and increasing tolerance for LGBTQ+ students, faculty, and staff at LAU, among others. In addition, this year, a Gender Equity Plan (a first at LAU) is being crafted to address systemic and other factors that continue to create challenges to equity, diversity, and inclusion in LAU's education and employment. It is hoped that the Gender Equity Plan will not only identify policies and procedures in which gender equity is lacking at LAU but also propose policies and procedures that can be implemented to improve the situation in the short- and long-terms. For example, while current hiring practices (staff and faculty) are supposedly gender-blind, individuals involved in making hiring decisions are almost always untrained in recognizing and trying to correct for their biases. The Gender Equity Plan will propose a short training to occur before every faculty hiring process as well as ongoing training for the recruitment of staff with the aim of increasing the hiring of female faculty and female staff at higher levels. Furthermore, a preliminary report from the Gender Equity Plan Committee (a permanent ad-hoc group approved by the President of the university with representation from across the institution) focuses on how more flexibility in work responsibilities (flextime, remote work, etc.) could benefit not only women at LAU but also all staff as well as the institution itself. This proposal will be brought to the upper administration early this spring.

Last, LAU is proud of its reputation as a leading higher education institution in the country and region that is not solely the preserve of one religious sect but rather celebrates the religious diversity that exists on our campuses while retaining its commitment to the equity and inclusion.

SPC B.6 – Environmental Systems

2019 Team Assessment: Evidence of student achievement at the prescribed level was not consistently found in student work prepared for ARCH424 - Building Services and ARCH422 - Climate & Energy (implemented in fall 2018). Evidence for active and passive heating and cooling, solar geometry, daylighting, natural ventilation, indoor air quality, solar systems was not consistently found among sections of these courses.

***SArD Response*:** A new Environmental Systems coordinator has already been appointed. The B.6 topics of active and passive heating and cooling, solar geometry, daylighting, natural ventilation, indoor air quality, solar systems have already been included in all sections syllabi and consistency in implementation will be ensured through course coordination. (See Appendix A - Syllabus of ARCH422 Climate and Energy).

SPC B.9 – Building Service Systems

***2019 Team Assessment*:** Evidence of student achievement at the prescribed level was not consistently found in student work prepared for ARCH424 - Building Services. Evidence for communication, security, and fire protection systems were not consistently found between sections of these courses

***SArD Response*:** A new Environmental Systems coordinator has already been appointed. The B.9 topics of communication, security, and fire protection systems have already been included in all sections syllabi and consistency in implementation will be ensured through course coordination. (See Appendix B - Syllabi of ARCH424 Building Services).

SPC D.1 – Stakeholders Role in Architecture

***2019 Team Assessment*:** Evidence of student achievement at the prescribed level was not found in student work. Evidence to support D.1 was found throughout the syllabus for ARCH481 – Construction Documents, but evidence of understanding key stakeholders in the professional world were not found in student work.

***SArD Response*:** In addition to emphasizing and demonstrating its implementation in ARCH481 – Construction Documents, the "D.1 – Stakeholders Role in Architecture" has been included in ARCH582 – Professional Practice II and will be consistently taught in all sections (See Appendix C - Syllabi of ARCH582 Professional Practice II).

Finally, we would like to mention that our engagement in the NAAB Accreditation process is an articulation of the School objectives to seek academic excellence, to implement student centeredness in the educational process, and to promote civic engagement. We consider this process of accreditation to be a major step in our quest for excellence, and look forward to form future leaders in architecture, who would contribute to finding solutions to the challenges facing humanity, and particularly in this part of the world.

We look forward to your response, and thank you for all your efforts.

Sincerely,

Elie Haddad, PhD
Dean
School of Architecture & Design
Lebanese American University

Lebanese American University **School of Architecture and Design**

ARCH 422 CLIMATE & ENERGY

Fall 2019	3 credits[3-0]	**TR**
Instructor	Michel Francis	ARC 202
Instructor's Office	By email	10:00 am - 12:00 pm
Office hours	TR 9.00 to 10.00	
Instructor's email	michel.francis@lau.edu.lb	

Course Description

This course investigates issues of climate and energy use in architecture, exploring the notion of thermal comfort and the necessary integration of environmental considerations related to sun, wind, and light, into the design process. Passive and active solutions are studied and analyzed using performance assessment tools, providing students with a comprehensive knowledge of sustainable design strategies.

Students' Learning Outcomes

1. Understand the notions of thermal comfort in architecture.
2. Identify sustainable design strategies and their impact on building form.
3. Evaluate different passive and active solutions.
4. Develop an adequate environmental system for a climate responsive design solution.

Pre-requisite: None
Passing Grade: D

Students' Performance Criteria

B.6 Environmental Systems: Ability to demonstrate the principles of environmental systems' design, how design criteria can vary by geographic region, and the tools used for performance assessment. This demonstration must include active and passive heating and cooling, solar geometry, daylighting, natural ventilation, indoor air quality, solar systems, lighting systems, and acoustics.
B.9 Building Service `Systems: Understanding of the basic principles and appropriate application and performance of building service systems, including lighting, mechanical, plumbing, electrical, communication, vertical transportation, security, and fire protection systems.

Outline

This course explores the interrelationship between sustainability, energy, and environment in architecture. The content covers the influences of climate and human comfort on design, strategic energy-efficient utilizations, and sustainable passive design principles. This is to realize the holistic approach for preeminent environmental design, building science and technology that achieve low-impact, climatically-responsive and regenerative built typologies. Such framework is further advanced through addressing the notion of integrative process applied to the building lifecycle, coherent concept generation, carbon emissions and energy use, and high-performance optimization in buildings. Practice and case studies will be discussed to involve students with the rationale and success/failure of applied ideas.

All students are expected to read topic sections of the textbook as assigned before the class. As such, they are expected to be active recipients of knowledge in the class. The lecture period is based on course text and visual materials. Individualized assistance and class discussion will be utilized in teaching this course. Field trips to view actual projects will be utilized when possible. Both group and individual work will be expected. Students may also be expected to participate in student-instructor conferences, small group discussions, classroom experiments/exercises and in other methods of presenting and analyzing climate and energy work. The following topics will be delivered.

Topics (14 weeks)

1. Sustainability, Energy & Environment
2. Design Process: Understanding the Intent, Criteria & Tools
3. Lessons from the field
4. Climate & Thermal Comfort
5. Bioclimatic Design: Hot Arid & Hot Humid
6. Bioclimatic Design: Temperate & Cold
7. Solar Geometry
8. Passive Heating Strategies
9. Passive Cooling Strategies
10. Daylighting Design
11. Energy Systems
12. Energy Efficiency & Benchmarking

13. Performance Assessment Tools: Passive & Active
14. Final review

*Two lectures (equivalent time) are dedicated to in-class activities (exams, quizzes, exercises, group presentations, review)

Bibliography

Required:
Lechner, N., 2014. *Heating, cooling, lighting: Sustainable design methods for architects*. John wiley & sons.

Recommended:
DeKay, M. and Brown, G.Z., 2013. *Sun, wind, and light: Architectural design strategies*. John Wiley & Sons.
La Roche, P.M., 2017. *Carbon-neutral architectural design*. CRC Press.
McDonough, W. and Braungart, M., 2010. *Cradle to cradle: Remaking the way we make things*. North point press.
Moore, F. and McGraw-Hill architecture and urban planning series, 1993. *Environmental control systems: Heating, cooling, lighting*. New York: McGraw-Hill.

Schedule of Due Dates & Grading Table

Deliverables	Weight	Work Type	Due Date & Location
Attendance and Quizzes/Exercises	10%	Individual	--
Assignment 1:	17.5%	Group	September 19 at 10.00
Midterm Quiz:	10%	Individual	September 26 at 10.00, in class
Assignment 2:	17.5%	Group	October 22 at 10.00
Assignment 3:	15%	Individual	November 26 at 10.00
Final Exam:	30%	Individual	Within exam period

First Review Date: Thursday, September 12 at 10.00

Midterm Date: Thursday, September 26 at 10.00.

Final Date: to be finalized as assigned by the department within exam period.

Rules & Regulations

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Lebanese American University **School of Architecture and Design**

ARCH 424 Building Services

Spring 2020	3 credits [3-0]	**M W**
Instructor	Mr. Michel Francis	Nicol 404
Instructor's Office		12:00 pm- 2:00 pm
Office hours	By email	
Instructor's email	Michel.francis@lau.edu.lb	

Course Description

This course introduces students to the basic principles of building services and their integration in the design process. The course will explore plumbing and water management, electrical systems and acoustics, as well as other utilities and infrastructural services, covering their technical requirements and specifications. Issues of energy conservation are put forward in an effort to identify environmentally sound alternatives.

Students' Learning Outcomes

1. Demonstrate an adequate selection of mechanical systems of heating, ventilation and air-conditioning in a given context.
2. Demonstrate an adequate selection of methods of water and sanitary management in a given context.
3. Demonstrate an adequate selection of methods of lighting and electrical management in a given context
4. Develop the detailed documentation of proposed solutions.

Pre-requisite: None
Passing Grade: C.

Students' Performance Criteria

B.6 Environmental Systems: Ability to demonstrate the principles of environmental systems' design, how design criteria can vary by geographic region, and the tools used for performance assessment. This demonstration must include active and passive heating and cooling, solar geometry, daylighting, natural ventilation, indoor air quality, solar systems, lighting systems, and acoustics.
B.9 Building Service Systems: Understanding of the basic principles and appropriate application and performance of building service systems, including lighting, mechanical, plumbing, electrical, communication, vertical transportation, security, and fire protection systems.

Outline

This course explores building services integration in architecture. The intent is to apply the notion of a holistic approach for applying emergent technologies in buildings not only to minimize adverse environmental impacts but also to generate new high-performance spatial ecologies. The course will cover the influences of HVAC systems, their design and strategic energy-efficient utilizations. Students will be provided with an understanding of thermal comfort, indoor air quality, and active and passive climate control approaches. The content will additionally involve lighting systems and electrical distributions in buildings in addition to sanitation systems, signaling, vertical transportation and architectural acoustics. Technical problems associated with extending high-quality environments for human habitation are also addressed.

All students are expected to read topic sections of the textbook as assigned before the class. As such, they are expected to be active recipients of knowledge in the class. The lecture period is based on course text and visual materials. Individualized assistance and class discussion will be utilized in teaching this course. Field trips to view actual projects will be utilized when possible. Both group and individual work will be expected. Students are also expected to participate in student-instructor conferences, small group discussions, classroom experiments/exercises and in other methods of presenting and analyzing environmental systems work. The following topics will be delivered.

Topics (14 weeks)

1. **Introduction to Building Services**:
    a. Describe the function of Building Services, their function and their place and relationship to other components of the building,
    b. Describe the current trends of efficiency, sustainability, safety and security.
    c. Apply the integrative process
    d. Understand the relationship between architectural design and Building Services, and comfort and safety requirements. Temperature, humidity, fresh air, air speed, lightning, ventilation, sound and connection to the 0utdoor, in addition to security, life safety, communication and data, and water and plumbing system.
2. **Fundamentals of HVAC: Psychrometrics & Thermal Zoning**:
    a. Describe the fundamentals of climate effect; heat flow in building designs, cooling, heating and ventilation strategies
    b. Describe the function of the building envelope, its insulation, and infiltration;
    c. Understand the effect of the climate, insulation, and the heat gain and loss

   d. Understand and apply psychrometry
   e. Correctly use the psychrometric chart
   f. Calculate sensible and latent heat, dry and wet bulb temperatures, absolute and relative humidity, enthalpy, specific volume, air state.
   g. Understand Thermal zoning and various types of thermal zones
   h. Dissect buildings into zones and understand thermostatic feedback loops and system balance.
3. **Types of HVAC Systems and HVAC Distribution Components:**
   a. Describe the types of systems for cooling, heating and mechanical ventilation
   b. Understand HVAC systems efficiency and their impact to the environment through a lifecycle perspective
   c. Describe environmental control and its implementation for various types of spaces and HVAC strategies.
   d. Understand demand control ventilation, and building management system
   e. Describe Types of HVAC Systems for cooling, heating and mechanical ventilation.
   f. Understand the notion of whole building energy modelling.
4. **Air Supply & Quantification:**
   a. Apply air supply and quantification in building HVAC systems
   b. Size actual HVAC systems through examples of psychrometric air supply quantification.
5. **Fundamentals of Lighting:**
   a. Describe fundamentals of light, Metrics & Criteria of lighting.
   b. Describe light use and function in building and for the architecture.
   c. Understand efficient electric lighting strategies, color temperature and rendering.
   d. Understand light qualities and how it can be exploited and mitigated.
   e. Understand glare and its effects and mitigations.
   f. Describe the various types of electric light fixtures and their efficiency.
   g. Describe the types of controls such as daylight linking and occupancy sensing, Lighting Management Systems.
6. **Lighting Design Procedures & Calculations:**
   a. Understand requirements for horizontal illuminance, reflectance effect, and modular lighting.
   b. Perform lighting design calculation through zonal cavity method and point method.
   c. Use basic computer-aided lighting design aids.
7. **Electrical Distributions in Buildings:**
   a. Understand the fundamentals of electricity and its metrics and electric energy.
   b. Perform basic power calculations.
   c. Describe the use of electricity in buildings, power supply and demand, high and low voltage, central services and distribution in buildings.
   d. Describe various types of switchgear.
8. **Vertical Transportation:**
   a. Describe classification, types, performance criteria and codes of vertical transportation.
   b. Understand elevator design considerations.
   c. Apply elevator selection and lobby sizing parameters through an example.
   d. Understand destination control.
9. **Signaling Systems**:
   a. Describe principles of intrusion detection.
   b. Describe alarm systems.
   c. Describe telecommunication and data systems.
   d. Describe intercom and public address systems.
   e. Describe access control systems.
   f. Describe Building Automation and Intelligent Building Systems.
10. **Water Supply & Plumbing and Drainage principles:**
   a. Understand fundamentals of water and plumbing systems.
   b. Describe integration in architecture, basic planning, collection, and storage.
   c. Understand quality, filtration and purification
   d. Understand hot and cold-water distribution, fixtures, metering and piping
   e. Describe the use of various types of valves.
   f. Describe water drainage systems, their principles, piping and design, sewage treatment, storm water
   g. Understand waste and storm water treatment.
11. **Fire and safety systems:**
   a. Describe the types and causes of fire.
   b. Understand basic fire code requirements.
   c. Understand the classification of structure and their fire rating.
   d. Apply design considerations for compartmentalization.
   e. Understand basic material rating.
   f. Apply design considerations for egress routes.
   g. Describe passive and active fire systems, fire detection and alarm and firefighting measures.

12. **Architectural Acoustics:**
    a. Define fundamental acoustical issues.
    b. Understand basic sound metrics and the perception of sound.
    c. Understand the interaction between sound and building materials.
    d. Understand how sound interacts within architectural spaces.
    e. Explain fundamental principles of sound transmission, sound absorption and sound proofing.
    f. Calculate sound insulation and sound absorption in architectural spaces.
    g. Understand propagation of vibration through structure.
    h. Describe active sound systems types, uses and application.
    i. Understand a notion on acoustic modelling.
13. Two lectures (equivalent time) are dedicated to in-class activities (exams, quizzes, exercises, group presentations, review)
14. **Final review**

Bibliography

Required:
Grondzik, W.T. and Kwok, A.G., 2014. *Mechanical and electrical equipment for buildings*. John Wiley & Sons.

Recommended:
Janis, R.R. and Tao, W.K., 2018. *Mechanical and electrical systems in buildings*. Pearson/Prentice Hall.
Lechner, N., 2011. *Plumbing, electricity, acoustics: Sustainable design methods for architecture*. John Wiley & Sons.
Lechner, N., 2014. *Heating, cooling, lighting: Sustainable design methods for architects*. John wiley & sons.
ASHRAE, A.S., 2017. Standard 55-2017. *Thermal environmental conditions for human occupancy*.
DiLaura, D.L., Houser, K.W., Mistrick, R.G. and Steffy, G.R., 2011. *The lighting handbook: Reference and application* (pp. 1328-p). New York: Illuminating Engineering Society of North America.

Schedule of Due Dates & Grading Table

Deliverables	Weight	Work Type	Due Date & Location
Attendance and Quizzes/Exercises	**10%**	**Individual**	**--**
Assignment 1:	**17.5%**	**Group**	**February 17 at 12.00 pm**

The purpose of this assignment is to study sustainable design strategies in architecture. Through researching a selected project, the goal is to document the rationale and success/failure of applied concepts that engage a process and/or a method in building science, energy and technology of environmental systems. Ultimately, the intent is to take a critical position about the learnt lessons and feasibility of principles into design implementation.

At the end of the work, students should be able to:

- Evaluate the function, intent and appropriateness of various researched technologies, processes and methods of sustainable design in the built environment. **(B6) – SLO 1, 3**
- Gain knowledge of developing case study in the form of original research for environmental systems in architecture. **(B6, B9) SLO 4**

Midterm Exam:	**10%**	**Individual**	**March 16 at 12.00 in class**
Assignment 2:	**17.5%**	**Group**	**March 23 at 12:00 pm**

The purpose of this assignment is to study the building services specific to HVAC or Lighting. Your research will involve various “green” projects and recent products/systems. The student will document the relative success/failures and comment on the feasibility of a broad-based adoption of heating, cooling and lighting principles into built environments.

The project extends the learning beyond the classroom. It will help in synthesizing the knowledge explored through the lectures and readings. At the end of the work, students will be able to:

- Clarify principles and characteristics of various building services. **(B6) SLO 1, 3**
- Demonstrate acquisition of the skills necessary to critically evaluate the function and appropriateness of indented system technique or method to a given context. **(B9) SLO 4**

Before last date of withdrawal (30 March) 45%

Assignment 3:	**15%**	**Individual**	**April 27 at 12.00 pm**

This assignment is about a design study that would involve the integration of an environmental system in a project. The work might be related-to or arise-from revisiting a project you have already developed (or are currently developing), while re-conceiving it relative to the sustainable design dimensions and active systems.

At the end of the work, the student will be able to:

- Identify the needs in any building for auxiliary mechanical and lighting entities **(B6, B9) SLO 1, 2, 3**
- Develop skills in integrating such entities in design thinking **(B6, B9) SLO 4**

Final Exam:	30%	Individual	Assigned by the Department

Midterm Date: March 16 at 12.00 in class

First Review Date: February 5 at 12.00 pm

Midterm Date: Should be before the deadline of the course withdrawal

Final Date: should be within the final exam period and is assigned by the department

February 21 will be the last day for early withdrawal (WI)
March 30 will be the last day for withdrawal from courses (WP/WF)

Rules & Regulations

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Lebanese American University **School of Architecture and Design**

ARCH 424 Building Services

Spring 2020	3 credits[3-0]	**T TH**
Instructor	Youssef Gerges	ARC 202
Instructor's Office	-	11:00 am - 12:30 pm
Office hours	-	
Instructor's email	youssef.gerges@lau.edu.lb	

Course Description

This course introduces students to the basic principles of building services and their integration in the design process. The course will explore plumbing and water management, electrical systems and acoustics, as well as other utilities and infrastructural services, covering their technical requirements and specifications. Issues of energy conservation are put forward in an effort to identify environmentally sound alternatives.

Students' Learning Outcomes

1. Demonstrate an adequate selection of methods of water and sanitary management in a given context.
2. Demonstrate an adequate selection of methods of lighting and electrical management in a given context
3. Develop the detailed documentation of proposed solutions.

Pre-requisite: None
Passing Grade: C.

Students' Performance Criteria

B.6 Environmental Systems: Ability to demonstrate the principles of environmental systems' design, how design criteria can vary by geographic region, and the tools used for performance assessment.
A demonstration must include active and passive heating and cooling, solar geometry, daylighting, natural ventilation, indoor air quality, solar systems, lighting systems, and acoustics.
B.9 Building Service Systems: Understanding of the basic principles and appropriate application and performance of building service systems, including lighting, mechanical, plumbing, electrical, communication, vertical transportation, security, and fire protection systems.

Outline

Part I	**Acoustics**
Session 1	Sound in enclosed spaces
Session 2	Building noise control
Session 3	Working class
Session 4	Working class
Session 5	Working class
Part II	**Passive systems**
Session 6	Thermal comfort
Session 7	Indoor air quality
Session 8	Solar geometry and shading devices
Session 9	Heat flow
Session 10	Working class
Session 11	Working class
Part III	**Electricity and Lighting**
Session 12	Principle of Electricity
Session 13	Electric systems and materials – service and utilization – wiring design
Session 14	Photovoltaic systems
Session 15	Lighting fundamentals
Session 16	Electric light sources and electric lighting design
Session 17	Working class
Session 18	Working class
Session 19	Working class
Session 20	Working class

Part IV	**Mechanical systems**
Session 21	Water supply and liquid waste
Session 22	Active climate control
Session 23	Vertical transportation
Session 24	Fire protection
Session 25	Signaling systems
Session 26	Working class
Session 27	Working class
Session 28	Working class

Bibliography

A. D. Althouse, C. H. Turnquist, A.F. Bracciano, D.C. Bracciano, and G.M. Bracciano, **Modern Refrigeration and Air Conditioning**, Goodheart-Willcox Publisher, 2016

D. Bainbridge, K. Haggard, **Passive Solar Architecture: Heating, Cooling, Ventilation, Daylighting and More Using Natural Flows**, Chelsea Green Publishing, 2011

G. Z. Brown, M. Dekay, **Sun, Wind, and Light: Architectural Design Strategies**, Wiley, 2001

A. S. Dadras, **Electrical Systems for Architects**, MC Graw Hill, 1995

M. D. Egan, **Architectural Acoustics**, J. Ross Publishing, 2007

F. A. Everest, K. C. Pohlmann, **Master Handbook of Acoustics**, MC Graw Hill, 2009.

W. T. Grondzik, A. G. Kwok, **Mechanical and Electrical Equipment for Buildings**, Wiley, 2015

R. W. Haines, M. E. Myers, **HVAC Systems Design Handbook**, McGraw-Hill, 2010

R. R. Janis, W. K. Y. Tao, **Mechanical and Electrical Systems in Building**, Prentice Hall, 2014

M. Karlen, J. Benya, C. Spangler, **Lighting Design Basics**, Wiley, 2012

N. M. Lechner, **Plumbing, Electricity, Acoustics: Sustainable Design Methods for Architecture**, Wiley, 2011

M. L. Nayyar, **Piping Handbook**, McGraw-Hill, 1999

P. Smith, **The Fundamentals of Piping Design**, Elseiver, 2013

G. R. Steffy, **Architectural Lighting Design**, Wiley, 2008

Schedule of Due Dates & Grading Table

Acoustic project	Submission session 6	22.5 %
Passive systems	Submission session 12	22.5 %
Electricity and lighting project	Submission session 21	22.5 %
Mechanical systems	Submission week 15	22.5 %
Attendance and participation		10%

Rules & Regulations

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Lebanese American University **School of Architecture and Design**

ARCH 582 PROFESSIONAL PRACTICE II

Spring 2020	3 credits	**F**
Instructor	Roger Skaff, AIA, NCARB	ARC 202 - BYBLOS CAMPUS
Instructor's Office	402 A	11:00 AM – 2:00 PM
Office hours	T-TH 10:30 AM – 12:00 PM	
Instructor's email	roger.skaff@lau.edu.lb	

Course Description

This course introduces the business aspects of the design practice, through the exploration of the financial, legal, and managerial components. It covers contract negotiations, marketing design services, as well as the managing of the client and contractor relationships. The course will introduce quality, economic, and time management principles of design projects; financing, budgeting, ethic – social and legal responsibility.

Prerequisites: ARCH581 Professional Practice I

Student Learning Outcome

1. Originate a business plan and structure for starting a practice
2. Assess project conditions to recommend types of contractual agreements.
3. Examine the fundamentals of project financing and building costs.

Student Performance Criteria

B.10 Financial Considerations: Understanding of the fundamentals of building costs, which must include project financing methods and feasibility, construction cost estimating, construction scheduling, operational costs, and life-cycle costs
D.2 Project Management: Understanding of the methods for selecting consultants and assembling teams; identifying work plans, project schedules, and time requirements; and recommending project delivery methods.
D.3 Business Practices: Understanding of the basic principles of a firm's business practices, including financial management and business planning, marketing, organization, and entrepreneurship.

Outline

Part I The Profession

1. Ethics : AIA Code of Ethics, NCARB Rules of Conduct, Ethics and Practice
2. Regulation : Legal Dimensions of Practice, Regulating Professional Practice
3. Development : Intern Development, Career Paths of Architects, Continuing Education, Professional Organizations.

Workshop 1

Part II The Client

4. Understanding Clients : Clients natures and values, Clients and Change, How Clients Choose Architects
5. Working with Clients : How Architects Choose Clients, Target Markets, Client Centered Marketing, Meeting Client Needs.

Workshop 2

Part III The Practice

6. Firm Planning : Firm Identity and Expertise, Strategic Planning for the Design Firm, Starting a Firm, Legal Structure.
7. Marketing and Outreach : Marketing Strategy, Public Relations, Business Development, Qualifications, Proposals, Interviews.
8. Financial Management : Economic Cycles, Financial Overview, Financial Systems, Financing Sources, Annual Budgets, Profit Planning.

Workshop 3

Part IV Project Delivery

9. Delivery Methods : Design-Bid-Build, CM-Advisor, CM-Constructor, Architect-Led Design-Build, Contractor-Led Design Build, Integrated Project Delivery (IPD).
10. Project Management : Stakeholders Roles, Project Design Teams, Budgets, Work Planning, Controls (Budget & Schedule), Construction Cost Management, Life Cycle Cost Analysis, Value Engineering, Construction Schedule.
11. Quality Management : Basics and Development, Quality Assurance (Design), Checklists, Quality Control during Construction.

Workshop 4

Part V Contracts & Agreements

12. Risk Management : Strategies, Insurance Coverage, Managing Disputes (Mediation, Arbitration, Litigation).
13. Agreements : Agreements with Clients, Client Developed Agreements, Project Team Agreements, Construction Agreements, The AIA Documents.

Workshop 4

Bilbliography

- The American Institute of Architects, c2009. The architecture student's handbook of professional practice - 14th ed., Hoboken, N.J. : John Wiley & Sons Inc.
- Paul Segal, 2011, Professional Practice: A Guide to Turning Designs into Buildings, W. W. Norton & Company, ISBN 0393733726, 9780393733723.
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- Greg Winkler, Gary C. Chiumento, c2009, Construction administration for architects, New York : McGraw-Hill.

Schedule of Exams & Grading Table

Assignment	Grade Percentage
Attendance & Participation	10%
Workshop 1	20%
Workshop 2	20%
Workshop 3	30%
Workshop 4	20%
Total	100%

Topical Outline:
Management Principles 30%
Contracts and Documents 45%
Finance and Budgeting 25%

Rules & Regulations

- A student can miss no more than one third of the course, after that the instructor may ask the student to drop the course. He will have in this case a grade Zero on class participation.
- Completion of the online course evaluations is required. Students will not be able to access their course grades until they have completed the course evaluation.
- Plagiarism: students caught cheating on an exam receive a grade of Zero.
- - Plagiarism applies as well in Term papers to quoting written texts without proper crediting, or copying full papers, or purchasing ready-made papers.
- Due dates are final: no work or project shall be accepted after the submittal time without a valid reason subject to the instructor approval.
- Students are required to submit their projects and assignments on the due date/due time without any exceptions. Students who are not able, for any reason, to be present on the submittal dates, are required to send their projects by proxy to be delivered to the instructor at the due time.
- Mid-term exam is not required. Graded class assignments will reflect the student understanding of the course and his/her evolution in Best Professional Practice skills.
- In order to improve the effectiveness of the educational process, all students are expected to submit their course evaluations by the last day of classes. Students who fail to complete the evaluation of ALL registered courses by the set deadline:
    1. will not be able to access their course grades from Banner or Portal until two weeks after the end of the final exams period; and
    2. will not be able to request transcripts.

  The anonymity of the process and the students will be maintained at all times.

Lebanese American University **School of Architecture and Design**

ARCH 582 PROFESSIONAL PRACTICE II

Spring 2020	3 credits	**F**	
Instructor	Dr. Sawsan Saridar Masri	Nicol Hall 404 - BEIRUT CAMPUS	
Instructor's Office	---	1:30 PM – 4:30 PM	
Office hours	By appointment		
Instructor's email	sawsan.masri@lau.edu.lb		

Course Description

This course introduces the business aspects of the design practice, through the exploration of the financial, legal, and managerial components. It covers contract negotiations, marketing design services, as well as the managing of the client and contractor relationships. The course will introduce quality, economic, and time management principles of design projects; financing, budgeting, ethic – social and legal responsibility.

Prerequisites: ARCH581 Professional Practice I

Student Learning Outcome

1. Originate a business plan and structure for starting a practice
2. Assess project conditions to recommend types of contractual agreements.
3. Examine the fundamentals of project financing and building costs.

Student Performance Criteria

B.10 Financial Considerations: Understanding of the fundamentals of building costs, which must include project financing methods and feasibility, construction cost estimating, construction scheduling, operational costs, and life-cycle costs
D.2 Project Management: Understanding of the methods for selecting consultants and assembling teams; identifying work plans, project schedules, and time requirements; and recommending project delivery methods.
D.3 Business Practices: Understanding of the basic principles of a firm's business practices, including financial management and business planning, marketing, organization, and entrepreneurship.

Outline

Part I The Profession

1. Ethics : AIA Code of Ethics, NCARB Rules of Conduct, Ethics and Practice
2. Regulation : Legal Dimensions of Practice, Regulating Professional Practice
3. Development : Intern Development, Career Paths of Architects, Continuing Education, Professional Organizations.

Workshop 1

Part II The Client

4. Understanding Clients : Clients natures and values, Clients and Change, How Clients Choose Architects
5. Working with Clients : How Architects Choose Clients, Target Markets, Client Centered Marketing, Meeting Client Needs.

Workshop 2

Part III The Practice

6. Firm Planning : Firm Identity and Expertise, Strategic Planning for the Design Firm, Starting a Firm, Legal Structure.
7. Marketing and Outreach : Marketing Strategy, Public Relations, Business Development, Qualifications, Proposals, Interviews.
8. Financial Management : Economic Cycles, Financial Overview, Financial Systems, Financing Sources, Annual Budgets, Profit Planning.

Workshop 3

Part IV Project Delivery

9. Delivery Methods : Design-Bid-Build, CM-Advisor, CM-Constructor, Architect-Led Design-Build, Contractor-Led Design Build, Integrated Project Delivery (IPD).
10. Project Management : Stakeholders Roles, Project Design Teams, Budgets, Work Planning, Controls (Budget & Schedule), Construction Cost Management, Life Cycle Cost Analysis, Value Engineering, Construction Schedule.
11. Quality Management : Basics and Development, Quality Assurance (Design), Checklists, Quality Control during Construction.

Workshop 4

Part V Contracts & Agreements

12. Risk Management : Strategies, Insurance Coverage, Managing Disputes (Mediation, Arbitration, Litigation).
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Workshop 4

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Lebanese American University **School of Architecture and Design**

ARCH 582 PROFESSIONAL PRACTICE II

SPRING 2020	3 credits		F
Instructor	TRACY NASR		ENG 504-BYBLOS CAMPUS
Instructor's Office	-		11:00 am – 2:00 pm
Office hours	By appointment.		Jan 20, 2020-May 04, 2020
Instructor's email	tracy.nasr@lau.edu.lb		

Course Description

This course introduces various business aspects of the design practice through the exploration of financial, legal, and managerial components, including contract negotiations, marketing design services, client management, and contractor relationships. Students also explore other professional considerations including time management, budgeting, ethics, and the social/legal responsibility of the design project.

Students Learning Outcome

1. Originate a business plan and structure for starting a practice
2. Assess project conditions to recommend types of contractual agreements.
3. Examine the fundamentals of project financing and building costs.

Pre-requisite: ARCH581 Professional Practice I
Passing Grade: C

Students Performance Criteria

B.10 Financial Considerations: Understanding of the fundamentals of building costs, which must include project financing methods and feasibility, construction cost estimating, construction scheduling, operational costs, and life-cycle costs
D.2 Project Management: Understanding of the methods for selecting consultants and assembling teams; identifying work plans, project schedules, and time requirements; and recommending project delivery methods.
D.3 Business Practices: Understanding of the basic principles of a firm's business practices, including financial management and business planning, marketing, organization, and entrepreneurship.

Outline

The course of study will be broken down into 6 subsets for presentation and discussion as follows:

Session 1	24-Jan		**1. THE PROFESSION**
		1	The Professional Practice of Architecture
		2	The Parties in the Construction Industry
		3	Career Development and Career Paths of an Architect
		4	Professional Organizations
		5	The Social, Legal & Ethical in the Business Environment
			LAUNCH OF WORKSHOP 1
Session 2	31-Jan		**2. THE ARCHITECT'S OFFICE**
		1	Business Formations: Sole proprietor, LLC, Inc., etc.
		2	Entrepreneurial Practice: Starting an Architecture Firm
		3	Originating a business plan and a business model canvas
		4	Powerful Elevator Pitching
			FEEDBACK - WORKSHOP 1
Session 3	7-Feb	5	Business Ownership - Risks & Motivations, Advantages and Disadvantages
		6	Management Styles
		7	The Stages of a Business
		8	Start-up Costs
			FEEDBACK - WORKSHOP 1

	14-Feb		NO UNIVERSITY
Session 4	21-Feb	9	Money Management
		10	Marketing and Business Development
		11	Branding & Promotional Tools
			LAUNCH OF WORKSHOP 2
			STUDENT PRESENTATIONS - WORKSHOP 1
Session 5	28-Feb		**3. THE PROJECT**
		1	Feasibility Studies
		2	Financial Considerations: Construction, Operational & Life-cycle costs
		3	Project Scheduling
			FEEDBACK - WORKSHOP 2
Session 6	6-Mar	4	Architectural Specifications & BOQ
		5	Project Phases & Submittals
		6	Pre-Construction Project Control
			FEEDBACK - WORKSHOP 2
Session 7	SATURDAY 7-Mar	7	Contract Tendering & Administration
		8	Value Engineering
		9	Project Budgeting, Work Planning, and Monitoring
		10	Project Success Criteria & KPIs
			LAUNCH OF WORKSHOP.3
			STUDENT PRESENTATIONS - WORKSHOP 2
Session 8	13-Mar		**4. FEES FOR ARCHITECT'S SERVICES**
		1	Factors Affecting Fee Estimates
		2	Indirect Job Costs
		3	Methods for Setting Design Fees
		4	Strategies to increase Design fees
			FEEDBACK - WORKSHOP 3
Session 9	20-Mar		**5. CONTRACTS AND AGREEMENTS**
		1	Order of Engineers Contractual Agreements
		2	FIDIC Contracts
		3	Letter of Agreement, Proposal and Contract
		4	Developing the Design Contract (Contract Content)
		5	Breach of Contract and Disputes
			FEEDBACK - WORKSHOP 3
Session 10	27-Mar		**6. PROJECT MANAGEMENT**
		1	Project Management
		2	Project Delivery Methods
		3	Stakeholder Management
			LAUNCH OF WORKSHOP.4
			STUDENT PRESENTATIONS - WORKSHOP 3
Session 11	3-Apr	4	Risk Management
		5	Resource Management
		6	Project Cost and Variations
			FEEDBACK - WORKSHOP 4

	Apr 10–13		Holiday: Western Easter
	Apr 17–20		Holiday: Eastern Easter
Session 12	Apr-24	7	Quality Management
		8	Emerging Issues in Project Delivery
		9	Technology in Practice & Building Information Modeling Processes (BIM)
			STUDENT PRESENTATIONS - WORKSHOP 4
	May-01		Holiday: Labor Day
	May-04		Spring 2020 classes end
	May 6–15		Spring 2020 final exams

25-Feb-20 Last day for early withdrawal from spring 2020 (WI)
1-Apr-20 Last day for withdrawal from courses for Spring 2020 (WP/WF)

Bibliography

American Institute of Architects. The Architect's Handbook of Professional Practice. Wiley, 15th edition, 2013
Segal, Paul. Professional Practice: A Guide to Turning Designs into Buildings, W.W. Norton Company Inc. NY, NY, 2011. ISBN 0393733726, 9780393733723.
Project Management Institute. A Guide to the Project Management Body of Knowledge (PMBOK® Guide). Newtown Square, Pennsylvania: Project Management Institute Sixth Edition, 2017
Foxell, Simon. Starting a Practice: A Plan of Work. RIBA Publishing, 2nd edition, 2015.
2017 -نظام تشغيل المعاملات- نقابة المهندسين بيروت-الجزء الاول:البناء

NOTE: Students are encouraged to develop relevant bibliographies, locate and study precedent cases.

Schedule of Due Dates & Grading Table

Evaluation of achievement in the course will be based on workshops, and participation in the discussion sessions.

Assessment Task	Task Type	Weighting	Launch Date	Due Date	Learning Outcomes
Workshop.1 - Ethics in Architecture Case Study	Group Work	20%	24/Jan/20	14/Feb/20	D.3 Business Practices
Workshop. 2 - Business Plan - Firm Case Study or Start-up company	Group Work	30%	21/Feb/20	7/Mar/20	B.10, D.2, D.3
Workshop.3 - Feasibility Study, construction cost estimating & scheduling	Individual	20%	7/Mar/20	27/Mar/20	B.10 Financial Considerations
Workshop.4 - Project Management	Individual	20%	27/Mar/20	24/Apr/20	D.2 Project Management
Attendance	Individual	10%			

Assessment of attendance:10% is obtained through satisfactory attendance and engagement with the learning environment at all lectures.

Rules & Regulations

- Students in this course are expected to attend all lectures. A student can miss no more than 4 sessions of instruction. To receive consideration for an excused absence (Absences without a Medical, Compassionate or Extenuating Circumstances) the student must email the instructor prior to the class or immediately after (within twenty-four hours) explaining the reason for class absence. Otherwise, this will result in a record of Absent and the instructor may ask the student to drop the course. He will have in this case a grade Zero on class participation.
- **Plagiarism**: Plagiarism applies as well in Term papers to quoting written texts without proper crediting, or copying full papers, or purchasing ready-made papers
- Students are required to submit their projects and assignments on the due date/due time without any exceptions or a valid reason subject to the instructor approval. Students who are not able, for any reason, to be present on the submittal dates, are required to send their projects by proxy to be delivered to the instructor at the due time.