School of Architecture

Omar Khan
Location: CFA 201
www.soa.cmu.edu (http://www.soa.cmu.edu)

The SoA educates students in the discipline of architecture emphasizing the role of creativity in architectural design; understanding its historical, social and environmental context; critically engaging technology in its innovation; and ethically working for social progress and justice in the built environment. Our undergraduate and graduate degree programs prepare students for the challenges facing architecture and urbanism in the twenty-first century, namely global warming, artificial intelligence and social justice. We aim to produce discipline-defining designers and thinkers in diverse global contexts.

This world-class architecture education is enhanced by our position within one of the world's leading research and entrepreneurship institutions, and by the fundamental premise that architectural excellence demands both rigorous training in fundamentals and the development of unique specializations. Students may extend their core knowledge either through concentration in architecture subdisciplines like urban design, sustainable design or computational design, or through interdisciplinary interaction with CMU's other renowned programs in the sciences, humanities, business and engineering. Though every SoA student graduates with intensive architecture knowledge, no two graduates leave with the same education.

In the twenty-first century, few architecture problems are straightforward. Graduates of SoA excel in the roles architects have performed for centuries - and in new roles catalyzed by the depth and breadth of their education - to create and execute innovative solutions to a huge range of emerging global challenges.

Undergraduate Degree Programs

The SoA offers two baccalaureate degree programs: the 5-year, professional Bachelor of Architecture (B.Arch), and the 4-year Bachelor of Arts in Architecture (B.A.). Both programs begin with the same studio-based curriculum in the first year, but then begin to diverge in terms of opportunities and outcomes. The B.Arch requires 10 studios and an extensive set of required professional courses, while the B.A. requires a minimum of 4 studios and fewer technical courses, all of which can be spread out over the four years of the program, and thus allow students to explore different opportunities in their studies.

Undergraduate students are admitted to the SoA without a declared degree program. By the end of the second year, students must select either the B.A. or the B.Arch degree program. The student's academic advisors, faculty, and Head provide mentoring and information to guide the student in selecting their degree option.

Bachelor of Architecture Program (B.Arch)

The Bachelor of Architecture (B.Arch) is a 5-year, first professional degree program accredited by the National Architectural Accrediting Board (NAAB, www.naab.org/accreditation/information/ (https://www.naab.org/accreditation/information/)) with a carefully defined set of "Program Criteria" (PC) and "Student Performance Criteria" (SPC). The B.Arch is for students proposing to pursue a career as a licensed architect or related profession, and centers around a carefully structured set of professional and technical courses about building design and construction, alongside the social, cultural and professional contexts in which architects operate. Our students graduate with a professional degree that prepares them to excel in practice—but that also launches them into key specialties within and around the profession.

Due to the technical nature of the B.Arch program at CMU, it is STEM-eligible, meaning that in addition to one year of Optional Practical Training (OPT), an international student on an F-1 visa may apply for a 24-month STEM OPT extension following graduation.

Statement on NAAB-Accredited Degrees

In the United States, most registration boards require a degree from an accredited professional degree program as a prerequisite for licensure. The National Architectural Accrediting Board (NAAB), which is the sole agency authorized to accredit professional degree programs in architecture offered by institutions with U.S. regional accreditation, recognizes three types of degrees: the Bachelor of Architecture, the Master of Architecture, and the Doctor of Architecture. A program may be granted an eight-year term, an eight-year term with conditions, or a two-year term of continuing accreditation, or a three-year term of initial accreditation, depending on the extent of its conformance with established education standards.

Doctor of Architecture and Master of Architecture degree programs may require a non-accredited undergraduate degree in architecture for admission. However, the non-accredited degree is not, by itself, recognized as an accredited degree.

The Carnegie Mellon University School of Architecture offers the following NAAB-accredited programs:

- Bachelor of Architecture (450 units)
- Master of Architecture (Pre-professional degree or equivalent + 180 units)

The next NAAB accreditation visit for the Bachelor of Architecture is scheduled for 2027. The first NAAB visit for continuation of accreditation for the Master of Architecture is scheduled for 2023.

The full 2020 NAAB Conditions for Accreditation can also be found on NAAB's website at: www.naab.org/accreditation/conditions-and-procedures/ (https://www.naab.org/accreditation/conditions-and-procedures/).

Bachelor of Arts in Architecture Program (B.A.)

The Bachelor of Arts in Architecture (B.A.) is a 4-year liberal studies degree program that allows and encourages interdisciplinary exploration. The program is built around a core foundation of architectural studios and technical coursework, but more than half of the units required for graduation are general studies courses and flexible electives. B.A. students have the opportunity to double major, test the boundaries of the discipline, and explore a variety of interests. If you are a student that embraces creativity, is curious about the world around you, and enjoys engaging both the left and right sides of your brain, the B.A. program could be a perfect fit for you.

As a 4-year, pre-professional architecture program, the B.A. allows those who are interested to continue in architecture with a 2-year professional M.Arch degree program (often called a 4+2 degree), or to go on to specialize in other fields in graduate school, including urban design, landscape architecture or other fields related to design, the built environment, virtual worlds, community engagement, sustainability, and more. The B.A. also makes it possible for students to transfer into architecture from other studies.

In the first year, the B.A. program begins with the same studio-based curriculum as the B.Arch program, but then begins to diverge in terms of opportunities and outcomes. The B.A. requires only the first four studios and the core courses from the first two years of the B.Arch sequence, and these can be spread out over the four years of the program. Students may take more studios, specialize in particular aspects of architecture, or explore broadly.

For students seeking to integrate architecture with another field of study, CMU also offers the BXA Intercollege Degree Programs. BXA students graduate with a Bachelor of Humanities and Arts, a Bachelor of Science and Arts, or a Bachelor of Computer Science and Arts degree.

B.Arch Curriculum

Minimum units required for Bachelor of Architecture	450

First Year: Poeisis

48-100	Architecture Design Studio: POIESIS STUDIO 1	15
48-104	Shop Skills	3
62-122	Digital Media I	6
62-104	Design Ethics & Social Justice in Architecture	3
62-125	Drawing I	6
76-101	Interpretation and Argument	9
99-101	Computing @ Carnegie Mellon	3
48-105	Architecture Design Studio: Poiesis Studio 2	15
62-123	Digital Media II	6
62-126	Drawing II	6
48-240	History of World Architecture, I	9

48-xxx	Pittsburgh	3
xx-xxx	Elective	6

Second Year: Poeisis

48-200	Architecture Design Studio: POIESIS STUDIO 3	18
48-215	Materials & Assembly	9
48-116	Introduction to Building Performance	3
62-225	Generative Modeling	9
xx-xxx	Elective	6
48-205	Architecture Options Studios	18
48-241	History of Modern Architecture	9
48-234	Introduction to Structures	3
62-275	Fundamentals of Computational Design	9
48-xxx	Seminar II	3
xx-xxx	Elective	6

Third Year: Praxis

48-300	Architecture Design Studio: Praxis Studio 1	18
48-315	Environment I: Climate & Energy in Architecture	9
48-250	Urbanism and the Social Production of Space	9
48-xxx	Architectural History III (Selective)	9
xx-xxx	Elective	6
48-305	Architecture Design Studio: Praxis Studio 2	18
48-380	Real Estate for Architects	6
48-xxx	Building Physics 2	6
48-xxx	Structures 2	6
xx-xxx	Elective	9

Fourth Year

48-400	Architecture Design Studio: Praxis Studio 3	18
48-432	Environment II: Design Integration of Active Building Systems	9
xx-xxx	Design Ethics (Selective)	3
xx-xxx	Elective	9
xx-xxx	Elective	6
48-405	Advanced Synthesis Options Studio II	18
48-381	Issues of Practice	6
48-383	Ethics and Decision Making in Architecture	6
xx-xxx	Elective	9
xx-xxx	Elective	3

Fifth Year

48-500	Advanced Synthesis Options Studio	18
xx-xxx	Elective	9
xx-xxx	Elective	9
xx-xxx	Elective	6
48-510 or 48-519	Advanced Synthesis Options Studio IV Architecture Design Studio: Thesis II/ Independent Project	18
xx-xxx	Elective	9
xx-xxx	Elective	9
xx-xxx	Elective	6

B.A. Curriculum

Minimum units required for Bachelor of Arts in Architecture 360

Design Studios

48-100	Architecture Design Studio: POIESIS STUDIO 1	15
48-105	Architecture Design Studio: Poiesis Studio 2	15
48-200	Architecture Design Studio: POIESIS STUDIO 3	18
48-205	Architecture Options Studios	18

Architecture Coursework

48-104	Shop Skills	3
48-xxx	Pittsburgh	3
48-240	History of World Architecture, I	9
48-241	History of Modern Architecture	9
48-116	Introduction to Building Performance	3
48-250	Urbanism and the Social Production of Space	6
48-215	Materials & Assembly	9

General Studies

99-101	Computing @ Carnegie Mellon	3
48-025	First Year Seminar: Architecture Edition I	3
76-101	Interpretation and Argument	9
48-xxx	Seminar II	3
62-104	Design Ethics & Social Justice in Architecture	3
62-122	Digital Media I	6
62-123	Digital Media II	6
62-125	Drawing I	6
62-126	Drawing II	6
62-225	Generative Modeling	9
62-275	Fundamentals of Computational Design	9

Electives

48-xxx	Architecture Electives	45
xx-xxx	University Electives (Outside SoA)	45
xx-xxx	Flex Electives (In or out of SoA)	105

Minors in Architecture

The SoA offers several minors in various specialty subjects related to architecture, some are only available to non-architecture students, others are only available to architecture majors, and still others can be taken by all CMU students. For the most up-to-date list of minors, see: https://soa.cmu.edu/minors (https://soa.cmu.edu/minors/).

Non-architecture students may minor in: Architecture, Architectural History, Architectural Representation & Visualization, Architectural Technology, and Computational Design.

Architecture majors may minor in: Architectural Design Fabrication, Architectural History, Architectural Representation & Visualization, Building Science, and Computational Design.

The **Minor in Architecture** sequence is for students who intend to develop intellectual links to the architectural profession. The scope of courses offered includes a full spectrum of professional issues in architecture. (*Available to non-architecture majors only.)*

The **Minor in Architectural Design Fabrication** is intended for students who wish to develop focused, disciplinary expertise in both analog and digital material methods for shaping the built environment and become involved in a community of practice dedicated to a rigorous pursuit of *making* as a mode of architectural research and cultural expression. It is also for students interested in gaining advanced placement in the SoA's Master of Advanced Architectural Design (MAAD) (https://soa.cmu.edu/maad/) program. *(Available to architecture majors only.)*

The **Minor in Architectural History** is intended for candidates interested in the history of architecture in its many manifestations, including high style and vernacular buildings, western and non-western traditions, built and theoretical works, and rural to urban contexts. Students wishing to pursue the minor should meet with the Architecture advisor to determine if a course is eligible. *(Available to both architecture majors and non-architecture majors.)*

The **Minor in Architectural Representation and Visualization** is intended for students who wish to develop particular skills in architectural representation, and for those who are interested in gaining advanced placement in the SoA's Master degree program in Computational Design (MSCD) (https://soa.cmu.edu/mscd/). *(Available to both architecture majors and non-architecture majors.)*

The **Minor in Architectural Technology** is intended for students who seek to develop intellectual links to the technical aspects of the profession. (*Available to non-architecture majors only.)*

The **Minor in Building Science** is intended for students that want to deepen their knowledge in the building sciences, and for those who are interested in gaining advanced placement in the SoA's Master degree programs in Building Performance & Diagnostics (MSBPD) (https://soa.cmu.edu/bpd/) or Sustainable Design (MSSD) (https://soa.cmu.edu/mssd/). *(Available to architecture majors only.)*

The **Minor in Computational Design** is intended for students who wish to engage with computation as a vehicle of generative, material, and spatial design exploration, and for those who are interested in gaining advanced placement in the SoA's Master of Science in Computational Design (MSCD)

(https://soa.cmu.edu/mscd/). *(Available to both architecture majors and non-architecture majors.)*

Advanced Standing in Master Degree Programs

The SoA offers a unique opportunity to undergraduate students who wish to pursue a post-professional Master's degree in an architecture-related field. The Accelerated Master's Program (AMP) (https://soa.cmu.edu/accelerated/) offers baccalaureate students the opportunity to expedite their completion of a Master's degree, saving both time and money—and allowing them to hit the job market with specialized knowledge and two CMU degrees. Baccalaureate students can pursue a graduate degree in the following subjects: Master of Architecture (M.Arch) (B.A. students only), Advanced Architectural Design, Architecture–Engineering–Construction Management, Building Performance and Diagnostics, Computational Design, Sustainable Design, and Urban Design. An AMP student must complete all of the units required by BOTH programs, less a maximum of 48 units that can be double-counted. For instance, B.Arch + MSSD-Applied would be 450 units + 135 units less 48 double-counted units, or 537 total units total for two degrees. B.Arch students may begin pursuit of a post-professional Master's degree through AMP as early as their third year.

Graduate Degree Programs

Carnegie Mellon University is recognized for outstanding contributions to science, technology, management, policy, and the fine arts. The School of Architecture builds on a tradition of interdisciplinary study. **The School of Architecture offers seven (7) Master's degrees, and three (3) Doctoral degrees in the following areas of study:**

Master of Advanced Architectural Design

The Master of Advanced Architectural Design (MAAD) (https://soa.cmu.edu/maad/) is a post-graduate, studio-based program that engages emerging methods of design and fabrication through architectural design to speculate upon future modes of architectural practice, enhanced construction methods, and material culture within the built environment.

Master of Architecture

The Master of Architecture (M. Arch) (https://soa.cmu.edu/march/) is two-year, studio-based, NAAB-accredited (https://soa.cmu.edu/about/#naab), first professional degree program to educate tomorrow's leaders in architecture-related careers. It requires a 4-year, pre-professional architecture program such as the B.A. or its equivalent to enroll, and is thus often called a 4+2 degree. The M.Arch program provides both the broad, comprehensive training in fundamentals required for U.S. professional registration and licensure, and the opportunity to focus on, speculate in, and obtain dual degrees with other research-based master's programs in the SoA. Our M.Arch program's strategically small size allows our self-motivated students to shape their individual educational agendas and career paths as they interact directly with a broad array of vertically integrated studios and advanced research projects in the school, the university, the local community, and around the world.

Master of Science/Doctor of Philosophy in Architecture–Engineering–Construction Management

A joint effort between the School of Architecture and the Department of Civil & Environmental Engineering, the Architecture–Engineering–Construction Management (AECM) (https://soa.cmu.edu/aecm/) programs prepare building delivery professionals for careers in capital project delivery dealing with the entire life-cycle of capital projects, from pre-design to design, construction, commissioning, operation, and maintenance stages. Graduates are educated to become effective decision makers who can positively impact economic, environmental, and ethical aspects of the built environment through professional management strategies. Our graduates have successful careers in government, industry, business, and NGO (non-governmental organization) sectors, prospering in positions where design professionals continuously make large-scale capital project design, construction, and maintenance decisions.

Master of Science/Doctor of Philosophy in Building Performance and Diagnostics

Our graduate programs in Building Performance & Diagnostics (BPD) (https://soa.cmu.edu/bpd/) have long led the world in advanced building technologies that sustainably reshape the built environment. BPD deals with the comprehensive integration of *building design* and *advanced technology*, as a means of producing high performance architecture. Led by the Center for Building Performance & Diagnostics (CBPD) (https://soa.cmu.edu/cbpd/) and housed within the Robert L. Preger Intelligent Workplace (http://www.cmu.edu/greenpractices/greenign-the-campus/green-buildings/intelligent-workplace.html), students have the opportunity to gain both diversity and depth of knowledge from world-renowned and experienced faculty.

Master of Science/Doctor of Philosophy in Computational Design

Our graduate programs in Computational Design (https://soa.cmu.edu/computational-design/) are among the first and best known in the country, and our legacy continues today. The Computational Design program takes a computer science view of design, applying both the science and art of computing to design problems, in relation to creation, presentation, analysis, evaluation, interaction or aesthetic expression; in real and imagined applications, both perceived and conceived. From the beginning, the program has benefitted from close cooperation with other units of the university, particularly the School of Computer Science and the Department of Civil & Environmental Engineering. Our research-based degree programs are intended for practitioners, educators and researchers in architecture, computer science, engineering and those interested in design. Our graduates go on to successful careers in government, industry, academia, and software development.

Master of Urban Design

The Master of Urban Design (MUD) (https://soa.cmu.edu/mud/) is a studio-based program distinguished by its emphasis on integrating socially engaged practice with new tools and techniques for representing, understanding, and designing cities; by the opportunity to work in trans-disciplinary teams at the intersection of the arts, humanities and technology across Carnegie Mellon's departments and colleges; and by its location in Pittsburgh—a thriving post-industrial laboratory.

MASTER OF SCIENCE IN SUSTAINABLE DESIGN

The Master of Science in Sustainable Design (MSSD) (https://soa.cmu.edu/mssd/) is a post-professional research-based graduate program focused on enabling deep expertise, critical thinking, and investigation of innovative sustainable strategies for the design of the built environment. The MSSD program explores technical and multicultural aspects of ecological thinking, while enabling actionable expertise in sustainable design methodologies. Based in the legacy of sustainability teaching at Carnegie Mellon University, the MSSD program prepares students to excel in research methods, and to become experts in integrative design thinking for the future of the built environment.

Student Advising

Architecture students can receive advice from many sources, including the faculty, staff, and administration of the School. All SoA undergraduates are urged to meet with the Senior Academic Advisor to review their academic progress and plans before each semester. Such meetings are important to take full advantage of elective possibilities within the curriculum, general progress toward graduation, and professional goal-setting. Students may also check their progress using the online academic audit in the Student Information Online (SIO) and should review the audit results with the senior academic advisor. The Academic Advisor will assist students with registration, academic audits, transfer credits, study abroad, SoA minors, finals grades and academic actions, as well as SoA and university policies and resources.

In addition, we encourage all of our students to become involved with student organizations such as AIAS or NOMAS, as well as committees such as the Student Advisory Council (SAC) in order to learn from peers. Students should seek advice about the Architectural Experience Program (AXP) and architectural licensing through the Architect Licensing Advisor

Study Abroad

The SoA strongly encourages students to study abroad. The perspective gained through immersion in another culture and language is invaluable. A student is exposed to architectural subjects not readily available at CMU and will study architecture directly in a foreign context. The Office of International Education (OIE) is an excellent resource for getting started for study abroad planning.

Study abroad can fall into four categories: University Direct Exchanges, University Sponsored Programs, External Programs, and Departmental Summer Programs.

Students are allowed one semester abroad for which they receive studio credit except for those students at approved direct, year-long exchange programs. Students may study abroad in the Fall, Spring, or Summer semesters. Careful planning and scheduling of your courses are necessary

when incorporating a study away experience into your curriculum. Students should investigate and start making decisions to study abroad by the fall of their second year, so they can plan their courses accordingly. Please see the academic advisor prior to making any decisions on what term to schedule your study away experience.

To qualify for a study abroad program other than the departmental summer programs, a student must have completed their third year of the program, have a minimum overall QPA of 3.00, and be in good academic standing (no current academic actions).

Students in SoA departmental summer programs must have completed their first year, and must be free of any academic actions for the semester prior to studying away, or permission may be denied. Students can petition the UPEC for exceptions.

Students who participate in a study abroad program for one semester will transfer non-studio course credit by submitting course descriptions of each course taken as well as an official transcript from the host Institution. Official translated transcripts must be submitted to the academic advisor before the beginning of the academic year to receive transfer credit. Grades are not transferred, only credits. Transfer credit is awarded upon receipt of an official translated transcript and only for courses with the grade of a C or better (not C-). When students return from study abroad, they must pin up original work during the study away exhibit, which will be subject to review by the UPEC or designated faculty.

Faculty

JARED ABRAHAM, Associate Studio Professor

VICKY ACHNANI, Adjunct Instructor

SAROSH ANKLESARIA, Fitz-Gibbon Visiting Professor

MARY-LOU ARSCOTT, Studio Professor & Associate Head

NINA BAIRD, Assistant Teaching Professor

NINA BARBUTO, Adjunct Faculty

JOSHUA BARD, Associate Professor & Associate Head

WILLIAM BATES, Adjunct Faculty

ARDAVAN BIDGOLI, Robotics Fellow

PRIYANKA BISTA, Joseph F. Thomas Visiting Profesor

HEATHER BIZON, Special Faculty

GINGER BROOKS TAKAHASHI, Adjunct Instructor

DARAGH BYRNE, Associate Teaching Track

DANIEL CARDOSO LLACH, Associate Professor

DONALD CARTER, Adjunct Faculty

MARK CHAMBERS, Adjunct Instructor

JEFFIE CHANG, Adjunct Instructor

ANNE CHEN, Adjunct Instructor

XIN CHEN, Adjunct Instructor

NICKIE CHEUNG, Adjunct Instructor

ERICA COCHRAN HAMEEN, Assistant Professor & Director of DEI

DOUG COOPER, Andrew Mellon Professor

STUART COPPEDGE, Adjunct Instructor

DANA CUPKOVA, Associate Professor

GERARD DAMIANI, Associate Professor

STEFANI DANES, Adjunct Faculty

JEFFREY DAVIS, Adjunct Faculty

TAMARA DUDUKOVICH, Adjunct Instructor

EMEK ERDOLU, Graduate Instructor

JEREMY FICCA, Associate Professor, Director dFAB

LAURA GARAFALO, Associate Professor

SINAN GORAL, Adjunct Faculty

STEFAN GRUBER, Associate Professor

KAI GUTSCHOW, Associate Professor & Associate Head

NAJEEB HAMEEN, Adjunct Faculty

VOLKER HARTKOPF, Professor Emeritus

HAL HAYES, Studio Professor

MATTHEW HUBER, Adjunct Faculty

ELIJAH HUGHES, Adjunct Instructor

THEODOSSIS ISSAIAS, Special Faculty

JENNA KAPPELT, Special Faculty

LYNN KAWARATANI, Liason Librarian to SoA

OMAR KHAN, Professor & Head

PHYLLIS KIM, Adjunct Instructor

JONATHAN KLINE, Associate Studio Professor

KRISTEN KURLAND, Teaching Professor

JONGWAN KWON, Special Faculty

KHEE POH LAM, Professor Emeritus

JOSHUA D. LEE, Assistant Professor

JUNEY LEE, Assistant Professor

STEPHEN R. LEE, Professor

SUZI LI, Graduate Instructor

TIAN LI, Graduate Instructor

WEI LIANG, Graduate Instructor

VIVIAN LOFTNESS, University Professor, Paul Mellon Professor

TONYA MARKIEWICZ, Adjunct Instructor

JACKIE JOSEPH PAUL MCFARLAND, Special Faculty

CHRISTINE MONDOR, Special Faculty

MELANIE NGAMI, Adjunct Instructor

NILOOFAR NIKOOKAR, Graduate Instructor

VERNELLE NOEL, Assistant Professor

PAUL OSTERGAARD, Adjunct Faculty

PAUL PANGARO, Visiting Scholar in Computational Design

MISRI PATEL, Anne Kalla Visiting Professor

NIHAR PATHAK, Graduate Instructor

STEPHEN QUICK, Adjunct Faculty

SARAH RAFSON, Adjunct Faculty

NIDA REHMAN, Lucian and Rita Caste Assistant Professor in Architecture and Urban Design

MANUEL RODRÍGUEZ LADRÓN DE GUEVARA, Studio Instructor & Research Assistant

AZADEH OMIDFAR SAWYER, Assistant Professor

NATHAN SAWYER, Special Faculty

CHARLIE SCHMIDT, Adjunct Instructor

EDWARD SEGAL, Adjunct Instructor

DIANE SHAW, Associate Professor

TULIZA SINDI, Anne Kalla Visiting Professor

ALA TANNIR, Adjunct Instructor

FRANCESCA TORELLO, Special Faculty

KUSHAGRA VARMA, Graduate Instructor

VALENTINA VAVASIS, Special Faculty

GERROD WINSTON, Adjunct Instructor

GARRET WOOD-STERNBURGH, Adjunct Instructor

HEATHER WORKINGER MIDGLEY, Adjunct Faculty

TOMMY CHEEMOU YANG, Anne Kalla Professor in Architecture

TIANCHENG ZHAO, Graduate Instructor