THE UNIVERSITY OF ARIZONA®

FORM TO REQUEST SUBSTANTIAL CHANGES TO AN EXISTING UNDERGRADUATE MAJOR

A request for substantial changes to an existing program requires approval from the school director/department head (managing administrator), college academic dean, Curricular Affairs, Undergraduate Council (UGC), and College Academic Administrators Council (CAAC). Additional approvals may be required, depending on the requested changes. Complete this form and submit to Martin Marquez (martinmarquez@email.arizona.edu) no later than October 25, 2019 to be considered for inclusion in the 2020-2021 Academic Catalog.

I.   **Requested by (College & School/Department):**
     College of Architecture, Planning, and Landscape Architecture, School of Architecture

II. **Proposer's name, title, email and phone number:**
     Robert Miller, Director, School of Architecture, millerr@email.arizona.edu, 520.621.6752

III. **Degree, major and number of students enrolled in the major. If you have emphases (sub-plans), list the number of students enrolled by emphasis:**
     Bachelor of Architecture (accredited, National Architectural Accrediting Board, Inc. (NAAB)), 400 students.

IV. **Describe proposed changes to the major. Provide a rationale and explanation for making changes to the major and include any relevant supporting data. Are the changes proposed a result of Annual Program Review (APR) and/or a result from the assessment of programmatic outcomes? If you are requesting a name change, please indicate if the subject code (course prefix) will also change. Include requested new prefix code and description.**

WHAT PRODUCED THIS PROPOSAL

>After our last accreditation in 2017, which was coupled with an Academic Program Review, the idea of "Optimizing" the degree was born out of strategic planning discussions by the Faculty: make the degree more efficient, remove redundancy, add impact.

>In AY 2017-2019 the goals and broad outlines of Optimization were adopted by the School Curriculum Committee (comprised student- and faculty-members); a new Foundation curriculum was implemented; changes were initiated in the Studio Stream; we applied for and received STEM status for the degree.

>In 2019-2020 new course syllabi have been drafted for the remaining courses and submitted. A new research phase of the degree was designed and adopted, which will give students greater agency in their studies during the final three semesters.

In summary, this is a multi-year process resulting in a degree overhaul with input from students and the Faculty.

RATIONALE

>Reduce redundancy and busywork for students.
>Generate better synergy between courses, workshops, and studios, with lessons reinforced across parallel courses and shared deliverables between courses where possible.
>Reduce the number of required courses; add student-choice and control in the last phase of the degree; create a trajectory after Milestone 2 in which each student develops a personal career vision.
>Improve the scholarly and research skills of graduates.
>Produce better and broader design abilities of students.
>Deliver accreditation-required core courses before Milestone 2, thus equipping every student with the requisite skills that allow them to collaborate, do applied outreach work, and tackle ambiguous problems during the final three semesters.

PROPOSED CHANGES

1. ACADEMIC PLAN: We propose to change the respective purpose of the two Academic Plans that comprise the Bachelor of Architecture (B.Arch).

Currently, students are admitted to PRARND where they take freshman coursework, then they apply for admission to ARCHBARCH for four years of the professional phase curriculum. This makes freshmen feel like they are not part of the School and not real architecture students.

We propose to have applicants *apply* to PRARND, then be selectively *admitted* into ARCHBARCH, which will now contain the full five-year curriculum. We have added an internal application process to PRARND that will allow it to temporarily hold a pool of applicants during review. This will provide more *nuanced selectivity* in admissions (leading to better quality students) and allow us better *control of the total number* of students (leading to better utilization of our tight facilities). Consequently, the document describes *composite* changes to PRARND and ARCHBARCH that include recent approvals leading up to this major transformation of the degree.

2. MATH (previously approved): College Algebra and Trigonometry were dropped in favor of MATH 108, a course developed specifically by the Math department to address the actual competencies of our incoming freshman and instruct them in mathematics actually needed for architectural studies. Other needed math skills have been incorporated in the School's Technology Stream.

3. PHYSICS (previously approved): We eliminated College Physics and Lab from freshman year and internalized physics instruction into the School's Technology Stream, so material is taught when it is needed and when it can be immediately applied and related to studio teaching. The new ARC 121 | Physical Principles of the Built Environment addresses the actual competencies of our incoming freshman and instructs them in physics principles actually needed for architectural studies.

4. FOREIGN LANGUAGE: We request permission to eliminate the foreign language requirement (submitted to UWGEC). NO ABOR peers who offer an accredited B.Arch require with it a foreign language; ONLY TWO accredited Bachelor of Architecture degrees in North America require a foreign language, and both waive the requirement for applicants with two semesters of high school language (see Part VI).

For the past 20 years, architectural education has gotten bloated as the computer has revolutionized the design and construction industry, adding complex systems and computational practices that require new ways of thinking and new skills in design, computation, presentation, and fabrication. Most architecture programs have sacrificed foreign language (along with some math and physics requirements) to make way for teaching digital competence. Some consider digital competence to parallel the benefits of foreign language study, not to mention it having become an essential contemporary global competency for architects.

5. TRANSITION: The B.Arch curriculum is organized into five Streams. We have reduced the number required courses in the major by two; we have recreated or are changing *every course in the major*. This matrix shows the old vs. new curriculum by Stream and illustrates the compression of required courses by subject area, the semester in which courses are transitioned, and the degree of change in each course. We have met with students in the impacted cohorts, explained the changes, and have (or will) solicited their consent to transition to the new curriculum. Each cohort has its own transitional curriculum with a guide for course equivalency in the case of courses being phased out.

B.Arch curriculum

current/recent	CU	ends	begins	CU	NET	optimized (major / minor change)
Design Communications Stream						
ARC 241 design communications 1	3	F2017	F2018	3		ARC 241 I Techne I
ARC 297m material fabrication 1	2	F2017	S2020	3		ARC 242 I Techne II
ARC 341 design communications 2	3	F2018	F2019	3		ARC 341 I Techne III
ARC 397m material fabrication 2	3	S2019				
	11			9	8% (2)	
History+Theory Stream						
(H+T Module within ARC 101)			F2017	2		ARC 131a/b I Thinking About Architecture
ARC 231 history + theory of architecture 1	4			3		ARC 231 history + theory of architecture I
ARC 232 history + theory of architecture 2	4			3		ARC 232 history + theory of architecture II
ARC 332 history + theory of architecture 3	3			3		ARC 332 history + theory of architecture III
ARC 471s history + theory of architecture 4	3		S2020	3		ARC 333 I Critical Inquiry and Expression
	14			14	12% 0	
Practice Stream						*Workshops over 59 students: offer in 2-sections of 30+
ARC 227 architectural programming	2	S2019	F2019	2		ARC 326 I Practice I
ARC 326 site planning	2	S2019	S2020	3		ARC 336 I Practice II
ARC 441 contract documents[e]	3	F2019	F2019	3		ARC 441 I Practice III
ARC 459 ethics and practice	3	S2020				
	10			8	7% (2)	
Technology Stream						
ARC 221 building technology 1 – structures 1	3	F2018	S2020	2		ARC 121 I Physical Principles of the Built Environment
ARC 222 building technology 2 – materials and methods 1	3	F2018	F2019	3		ARC 221 I Building Construction I
ARC 223 building technology 3 – environmental control systems 1	3	S2019	S2020	3		ARC 222 I Building Technologies I
ARC 321 building technology 4 – materials and methods 2	3	F2018	F2019	3		ARC 321 I Building Technologies II
ARC 322 building technology 5 – structures 2	3	S2019	F2019	3		ARC 322 I Building Construction II
ARC 421 building technology 6 – environmental control systems 2	3	F2018	F2019	3		ARC 421 I Building Technologies III
ARC 422 building technology 7 – structures 3	3	S2019				
	21			17	14% (4)	
Studio Stream						
ARC 101a/b I Foundation I	6	F2019	F2020	4		ARC 101a/b I Foundation I
ARC 102 I Foundation II	6	S2020	S2021	4		ARC 102 I Foundation II
ARC 201 I Design Studio I	6			6		ARC 201 I Design Studio I
ARC 202 I Design Studio II	6			6		ARC 202 I Design Studio II
ARC 301 I Design Studio III	6			6		ARC 301 I Design Studio III
ARC 302 I Design Studio IV	6			6		ARC 302 I Design Studio IV
ARC 401 I Design Studio V	6			6		ARC 401 I Design Studio V
ARC 451a I Options Studio	6			6		ARC 451a I Options Studio*
ARC 451b I Options Studio	6			6		ARC 451b I Options Studio*
ARC 497 I Project Inquiry	3	F2020	F2021	3		ARC 497 I Project Inquiry*
ARC 498 I Capstone Studio	6	S2021	S2022	6		ARC 498 I Capstone Studio*
	63			59	50% (4)	
NAAB Optional Studies						
upper division, technical electives 1-4	12			3		from each of 3-to-5 Research Clusters
						P3-elective 1
						P3-elective 2 (3) or ARC 451 (6) above
				9		other SoA technical electives
	12			12	10% 0	
units in the major	131			119	(12)	
NAAB General Studies						
ENGL 101	3			3		ENGL 101
ENGL 102	3			3		ENGL 102
MATH 112 college algebra	3	F2018	F2019	4		MATH 108
MATH 111 trigonometry	2	F2018				
PHYS 102 college physics	3	S2019				
PHYS 181 physics lab	1	S2019				
2-tier 1 INDV	6			6		tier 1 INDV
1-tier 1 NATS	3			6		tier 1 NATS
2-tier 1 TRAD	6			6		tier 1 TRAD
tier 2 HUM	3			3		tier 2 HUM
tier 2 INDV	3			3		tier 2 INDV
tier 2 NATS	3			3		tier 2 NATS
2-foreign language or 2-electives**	6	S2020		9		electives**
units in General Studies	45			46	1	
units in the degree	176			165	(11)	

*must complete ARC 497, 498, and either 2-P3 electives or 1-P3 elective + 1-ARC 451 from a single Research Cluster

the School will support 3-5 Research Clusters per year, based on enrollment; students will be required to complete a minimum of four courses from one Cluster:

2-P3 electives, or, 1 P3 elective + 1 options studio

ARC 497 I Project Inquiry

ARC 498 I Capstone Studio

All P3 electives will be offered by the School of Architecture, and will vary by Research Cluster.

**NAAB requires min. 45-CU in General Studies, which determines the aggregate total of coursework outside Architecture and is resolved in electives.

6. RESEARCH CLUSTERS: Phase 3, the last three semesters, will emphasize Research and Application. The Faculty will form Research Groups in response to an annual call for Research Clusters: thematically-related courses that will build an applied research culture and focus on areas of faculty expertise. This will foster Faculty collaboration, keep the pedagogy fresh, and model to students the kinds of applied knowledge that are current in architectural practice. Based on enrollment, the School will be able to support 3-5 Clusters per year; students will be required to complete a minimum of four courses from one Cluster:

        2-P3 electives, or, 1 P3 elective + 1 options studio

        ARC 497 | Project Inquiry

        ARC 498 | Capstone Studio

The courses in each Cluster will be designed to advance the depth, rigor, and sophistication of student work in each thematic area and be taught by at least two faculty members. Proposals will be evaluated by the School Curriculum Committee and Clusters may be renewed for multiple years.

7. TOTAL CU: We propose to reduce total credit units from 176-CU to 165-CU, bringing the degree into better alignment with peer institutions—see Part VI.

8. ACCREDITATION REQUIREMENTS: The National Architectural Accrediting Board, Inc. (NAAB) requires minimum 150-CU, of which 10-CU must be in Optional Studies (outside professional studies) and 45-CU in General Studies (non-architecture).

9. PHASES: The five-year degree will still have three phases, each separated by a Milestone for qualified passage to the subsequent phase:

B.Arch curriculum

	Professional Studies	NAAB General Studies	NAAB Optional Studies	CU
phase1: FOUNDATION				
Fall 1				
ENGL 101 English		3		
Math 108		4		
ARC 101a I Foundation Studio Ia	2			
ARC 131a I Thinking About Architecture	1			
ARC 101b I Foundation Studio Ib	2			
ARC 131b I Thinking About Architecture	1			
				13
Spring 1				
ENGL 102 English		3		
ARC 102 I Foundation Studio II	4			
ARC 121 I Physical Principles of the Built Environment	2			
tier 1 GenED$^\Sigma$		3		
tier 1 GenED$^\Sigma$		3		
				15
MILESTONE 1$^\Delta$				

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B.Arch curriculum

	Professional Studies	NAAB General Studies	NAAB Optional Studies	CU
	required CU			

phase2: CORE

Fall 2

	Professional Studies	NAAB General Studies	NAAB Optional Studies	CU
ARC 201 I Design Studio 1	6			
ARC 221 I Building Construction I	3			
ARC 231 I History + Theory I$^\nabla$	3			
ARC 241 I Techne I	3			
				15

Spring 2

	Professional Studies	NAAB General Studies	NAAB Optional Studies	CU
ARC 202 I Design Studio 2Θ	6			
ARC 222 I Building Technologies I	3			
ARC 242 I Techne II	3			
ARC 232 I History + Theory II$^\nabla$	3			
tier 1 GenED$^\Sigma$		3		
				18

Fall 3

	Professional Studies	NAAB General Studies	NAAB Optional Studies	CU
ARC 301 I Design Studio 3Θ	6			
ARC 321 I Building Technologies II	3			
ARC 341 I Techne III	3			
ARC 326 I Practice I	2			
ARC 332 I History + Theory III$^\nabla$	3			
				17

Spring 3

	Professional Studies	NAAB General Studies	NAAB Optional Studies	CU
ARC 302 I Design Studio 4Θ	6			
ARC 322 I Building Construction II	3			
ARC 336 I Practice II	3			
ARC 333 I Critical Inquiry and Expression	3			
tier 1 GenED$^\Sigma$		3		
				18

Fall 4

	Professional Studies	NAAB General Studies	NAAB Optional Studies	CU
ARC 401 I Design Studio 5ΘΘ	6			
ARC 441 I Practice III$^\Theta$	3			
ARC 421 I Building Technologies III$^\Theta$	3			
tier 1 GenED$^\Sigma$		3		
				15

MILESTONE 2$^\Delta$				

phase3: RESEARCH+APPLICATION

Spring 4

	Professional Studies	NAAB General Studies	NAAB Optional Studies	CU
ARC 451a I OPTIONS Studio$^{\Theta\beta}$	6			
P3 elective 1$^\beta$			3	
P3 elective 2$^\beta$			3	
tier 1 GenED$^\Sigma$		3		
tier 2 GenED$^\rho$		3		
				18

Fall 5

	Professional Studies	NAAB General Studies	NAAB Optional Studies	CU
ARC 451b I OPTIONS Studio$^{\Theta\beta}$	6			
ARC 497 I Project Inquiry$^\beta$	3			
P3 elective 3$^\beta$			3	
tier 2 GenED$^\rho$		3		
upper division elective$^\alpha$		3		
				18

Spring 5

	Professional Studies	NAAB General Studies	NAAB Optional Studies	CU
ARC 498 I Capstone Studio$^{\Theta \infty \beta}$	6			
P3 elective 4$^\beta$			3	
tier 2 GenED$^\rho$		3		
upper division elective$^\alpha$		3		
upper division elective$^\alpha$		3		
				18

	Professional Studies	NAAB General Studies	NAAB Optional Studies	CU	
	42	37		79	lower division
	65	9	12	86	upper division
required CU$^\Omega$	107	46	12	165	degree
required architecture v. other CU	107	58		17	ave/sem

V. **Comparison Chart**–complete the chart below using your existing academic advisement report. You may not need to complete all portions. Highlight row(s) indicating the proposed significant changes. You can find course information to help complete the chart below by using the UA course catalog or UAnalytics (Catalog and Schedule Dashboard> "Printable Course Descriptions by Department" On Demand Report; right side of screen). Proposed changes resulting in similar curriculum with other plans (within department, college, or university) may require completion of an additional comparison chart.

	Existing Major Requirements	Requirements For Modified Major
Major, emphasis (if applicable) and degree *	B.Arch	B.Arch
CIP Code –lookup here or contact Martin Marquez for assistance, if needed	04.0200 04.0902	04.0902
Total units required to complete the degree*	176	165
Upper -division units required to complete the degree	83	86
Total CC transfer units that may apply to this degree*	0	0
Foundation courses		
Math	Moderate	no change
Second Language	2nd semester proficiency	No second language required
General Education		
Tier I GE Requirements (150, 160, 170)	2- Tier 1 150 (INDV) 2- Tier 1 160 (TRAD) 1- Tier 1 170 (NATS)	add 1-Tier 1 170 (NATS) to replace PHYS 102/181
Tier II GE Requirements (Arts, HUMS, INDV, NATS)	1-Tier II Humanities 1- Tier II Individuals and Societies 1-Tier II Natural Sciences	no change
Pre-major? (Yes/No)	Yes	Yes
List any special requirements to declare or gain admission to this major (completion of specific coursework, minimum GPA, interview, application, etc.)	to PRARND 2.0 GPA to ARCHBARCH 2.0 GPA and Milestone 1: Portfolio—25% GPA—15% Studio grades—45% History+Theory Grade—15%	to PRARND 2.0 GPA; to ARCHBARCH Submit mechanical diagram, drawing, photo, and essay. Milestone 1 (after semester 2, admit up to 90): 2.0 GPA Portfolio—25% GPA—15%

	within ARCHBARCH 2.0 GPA; minimum 2.0 GPA in ARC 201 through ARC 451b; Milestone 2 (after semester 7, admit all who qualify): portfolio review across five curricular Streams: Studio, History+Theory, Design Communications, Technology, and Practice.	Studio grades—45% ARC 121/131 grades—15% Milestone 2 (after semester 7, admit all who qualify): portfolio review across five curricular Streams: Studio, History+Theory, Design Communications, Technology, and Practice.
Minimum # of units required in the major (units counting towards major units and major GPA)	131	119
Minimum # of upper-division units required in the major (upper division units counting towards major GPA)	89	77
Minimum # of residency units to be completed in the major	18	18
Required supporting coursework (courses that do not count towards major units and major GPA, but are required for the major). Courses listed must include prefix, number, units, and title. Include any limits/restrictions in place/needed (house number limit, etc.). Provide email(s)/letter(s) of support from home department head(s) for courses not owned by your department.	none	no change
Major requirements. List all major requirements including core and electives. If applicable, list the emphasis^ requirements. Courses listed count towards major units and major GPA. Courses listed must include prefix, number, units, and title. Mark new coursework (New). Include any limits/restrictions in place/needed (house number limit, etc.). Provide email(s)/letter(s) of support from home department head(s) for courses being added and are not owned by your department. Recommend ordering requirements in the same order as your advisement report.	see IV.5 above	see IV.5 above.
Internship, practicum, applied course requirements. (Yes/No). If yes, provide description.	optional	no change
Senior thesis or senior project required (Yes/No). If yes, provide description.	Yes	no change
Additional requirements (provide description)		see IV.6 above: Research Clusters
Minor (optional or required)	optional	optional

*May require Arizona Board of Regents (ABOR) approval

^Emphases are officially recognized sub-specializations within the discipline. ABOR Policy 2-221 c. Academic Degree Programs Subspecializations requires all undergraduate emphases within a major to share at least 40% curricular commonality across emphases (known as "major core"). Total units required for each emphasis must be equal.

VI. Peer institution comparison- describe how your modified major requirements are similar and different from major requirements of two peer institutions. Select peers from (in order of priority) ABOR approved institutions, AAU members, and/or other relevant institutions recognized in the field.

2019   schools of architecture offering an **accredited Bachelor of Architecture**

	Professional Studies required architecture	Optional Studies architecture electives	General Studies non-architecture req's	Total	foreign language requirement
California Polytechnic State University θ	81	37	32	150	no
Kennesaw State University	97	11	42	150	no
University of Oklahoma	100	9	41	150	yes [Δ]
Mississippi State University	113	12	27	152	no
Oklahoma State University	79	23	52	154	no
University of Oregon θ	43	53	58	154	no
Virginia Polytechnic Institute + State University	107	6	47	160	yes [Δ]
University of Arkansas	104	12	45	161	no
University of Texas at Austin *	90	20	51	161	NO
Pennsylvania State University *	111	15	36	162	NO
average	93	20	43	155	
University of Arizona — current	119	12	45	176	YES
University of Arizona — proposed	107	12	46	165	NO

* ABOR PEER
θ converted from quarter system (CU X 0.667)
Δ waived if two semesters high school foreign language

The UA B.Arch currently has 15% more CU than the average of other B.Arch degrees offered in the US. Our proposal would bring us to within 6% of the average load of the other schools and within 4-CU of the ABOR Peer institutions' B.Arch degrees. This will make us market competitive without sacrificing the quality of education delivered.

VII. Faculty impact– indicate if new faculty hires will be required to deliver the proposed modified/new curriculum.

No additional faculty will be needed. While we will reduce the number of required courses by two, we will increase the number of technical electives, which will have smaller class sizes, in order to populate the new Research Clusters in Phase 3 of the degree. As a result, there will be more, smaller, courses in Phase 3 of the degree offering students greater curricular choice and higher teacher-student ratios.

VIII. Budgetary impact– indicate new resources needed and source of funding to implement the proposed changes. If reallocating resources, indicate where resources will be taken from and the impact this will have on students/faculty/program/unit.

While we will drop the number of required units in the major from 130 to 119, we are increasing the cohort size from about 60 students/class in years 2-5 to about 85. As the drop in CU occurs entirely in years 2-5, the approximate change in SCH is estimated to increase by about 30%:

B.Arch curriculum

	CU in major	students per year	SCH	change
current	131	60	7860	129%
proposed	119	85	10115	

IX. Required signatures

Managing unit administrator (print name and title): Robert Miller, Director, School of Architecture

Managing administrator's signature: Date: **2019.11.05**

Managing unit administrator (print name and title): _____

Managing administrator's signature: _____   Date:_____

Dean (print name):   Nancy Pollock-Ellwand, Ph.D., FCSLA; CAPLA Dean

Dean's signature: Date: **2019.11.05**

Dean (print name): _____

Dean's signature: _____   Date:_____

Note: In some situations, signatures of more than one unit head and/or college dean may be required.

For use by Curricular Affairs:

Committee	Approval date
Academic Programs Subcommittee	
Undergraduate Council	
College Academic Administrators Council	
Arizona Board of Regents (if applicable)	

☐ Notify proposers of approval
☐ Upload proposal documents to relevant UAccess tables
☐ Notify ADVIP team and proposers

If ABOR approval required :
☐ If applicable, create approval memo
☐ Send memo to college/dept and acad_org listserv.
☐ If applicable, create new plan code (secondary too)
☐ If applicable, update emphases
☐ If applicable, add last admit term to prior plan code(s)
☐ Upload proposal docs to relevant UAccess table values
☐ Notify ADVIP team and proposers