Update as of 3/30/2017 regarding math placement

New students Fall 2017
Please note that this version of the AREN curriculum is only for students matriculating from Fall 2015 to Spring 2017. Updated information for students matriculating in Fall 2017 will be posted this summer.

Incoming Fall 2017 students are automatically placed in pre-calculus, calculus or given the option to take additional prerequisites based on their admissions data.

Continuing students
Students that completed the ALEKS placement test will be placed according to their ALEKS math placement test. Continuing students that have not taken the ALEKS math placement test will be automatically placed in pre-calculus, calculus or other prerequisites based on patterns of prior experience including admission application, high school transcripts, previous CU Boulder coursework, etc.

For more information, including how to test out of a math placement, visit the CU Boulder Undergraduate Education math placement webpage.

Modified AREN Block Diagram with Precalculus

Sem	CR						
8 SPR	**17**	Proficiency/ Concentration/ Tech Elective – 3+	Proficiency/ Concentration/ Tech Elective – 3+	Proficiency/ Concentration/ Tech Elective – 3+	**AREN 4317-5 #** AREN Design (ARCH 4010*)	Proficiency/ Concentration/ Tech Elective – 3+	
7 FALL	**17**	Proficiency/ Concentration/ Tech Elective – 3+	Proficiency/ Concentration/ Tech Elective – 3+	**AREN 3010-3 #** Mech. Systems Bldgs. (AREN 2050, 2110, 2120)	**ARCH 4010-5 #** Arch. Design (Senior standing)	**ECEN 3030-3 #** Electrical Circuits (APPM 2360)	
6 SPR	**18**	Proficiency/ Concentration/ Tech Elective – 3+	Proficiency/ Concentration/ Tech Elective – 3+	**AREN 2120-3 #** Fluid Mech. & Heat Transfer (APPM 2350, AREN 2110, co-req. APPM 2360)	**ENVD 3134-3 #** History and Theory of ENVD: Precincts	**CVEN 3525-3** Structural Analysis (CVEN 3161)	**College-Appr. Writing Course-3****
5 FALL	**16**	**APPM 2360-4** Introduction to Linear Algebra & Diff. Equations (APPM 1360)	**AREN 3540-3 #** Illumination 1 (COEN 1300, APPM 2350)		**ENVD 3114-3 #** History and Theory of ENVD: Buildings	**CVEN 3161-3** Mechanics of Materials I (CVEN 2121, co-req. APPM 2360)	**HSS Elective-3**
4 SPR	**16**	**APPM 2350-4** Calculus III for Engineers (APPM 1360)	**CHEN 1310-3** Engrg. Computing (co-req. APPM 1350)		**CVEN 3246-3** Introduction to Construction (4th-semester standing)	**CVEN 2121-3** Analytical Mechanics I (PHYS 1110, co-req. APPM 2350)	**HSS Elective-3**
3 FALL	**17**	**APPM 1360-4** Calculus II for Engineers (APPM 1350)	**PHYS 1120-4** Gen. Physics II (PHYS 1110, co-req. APPM 1360)	**AREN 2110-3** Thermodynamics (PHYS 1110, co-req. APPM 1360)	**AREN 2050-3 #** Building Materials and Systems (Soph. standing)		**Free Elective-3**
2 SPR	**16 or 17**	**APPM 1350-4** Calculus I for Engineers (APPM 1235)	**PHYS 1110-4** Gen. Physics I (co-req. APPM 1350)		**CVEN 2012-3 #** Introduction to Geomatics	**GEEN 1400-3** Engrg. Projects OR **Basic Engineering Elective**	**HSS Elective-3****
1 FALL	**13 or 14**	**APPM 1235-4** Pre-Calculus for Engineers (ALEKS score 61+)	**CHEN 1211-4** Gen. Chem. for Engineers (1 yr. HS chem. or CHEM 1021)	**CHEM 1221-1** General Chemistry Lab for Engineers (co-req. CHEN 1211)	**AREN 1316-2 #** Introduction to Architectural Engineering	**AREN 1027-3** Engineering Drawing OR **AREN 1037-3**	

Fall 2015/updated August 2016

**Course is offered only once per year (FALL or SPRING as shown).**

( ) **Prerequisite and co-requisite requirements for course listed.**

***** **Other prerequisites: AREN 3010, AREN 3540, CVEN 3246, CVEN 3525, ECEN 3030.**

****** **College-approved writing courses: HUEN 1010 (taken in first two semesters of college only); or HUEN 3100, WRTG 3030, WRTG 3035, or PHYS 3050 (junior standing).**

+ **Semesters in which proficiencies/concentrations/tech electives are taken will vary by concentration. A complete block diagram for each concentration is available from the AREN undergraduate advisor.**

ARCHITECTURAL ENGINEERING CONCENTRATIONS

At least one concentration must be completed in its entirety, including all fundamental, proficiency, and concentration courses.
Fundamental – All students take the fundamental courses in all **four** concentration areas.
Proficiency – Students choose **two** of the four areas in which to take a second proficiency-level course.
Concentration – Students choose **one** area in which to take two additional concentration-level courses.

STRUCTURAL SYSTEMS

Fundamental –	CVEN 3525 Structural Analysis (CVEN 3161) – **Fall and Spring**
Proficiency –	CVEN 4545 Steel Design (CVEN 3525) – **Spring**
	or CVEN 4555 Reinforced Concrete Design (CVEN 3525) – **Fall**
Concentration –	CVEN 4161 Mechanics of Materials II (CVEN 3161) – **Fall**
	and one of the following:
	CVEN 4545 or 4555 (whichever not selected as proficiency)

MECHANICAL SYSTEMS

Fundamental –	AREN 3010 Mechanical Systems for Buildings (AREN 2050, 2110, 2120) – **Fall**
Proficiency –	AREN 4110 HVAC Design (AREN 3010) – **Spring**
Concentration –	AREN 4830 Computer Simulation of Building Systems - **Spring**
	AREN 4890 Sustainable Building Design (AREN 3010) - **Fall**

LIGHTING/ELECTRICAL SYSTEMS

Fundamental –	ECEN 3030 Electrical Circuits (APPM 2360) – **Fall**
	and AREN 3540 Illumination I (CHEN 1310, APPM 2350) – **Fall**
Proficiency –	AREN 4550 Illumination II (AREN 3540) – **Spring**
	or AREN 4560 Luminous Radiative Transfer (AREN 3540) – **Spring**
	or AREN 4570 Electrical Systems (ECEN 3030) – **Fall**
Concentration –	AREN 4550, 4560, 4570 (whichever two not selected as proficiency)

CONSTRUCTION ENGINEERING & MANAGEMENT

Fundamental –	CVEN 3246 Introduction to Construction (4^{th}-semester standing) – **Fall and Spring**
Proficiency –	CVEN 3256 Construction Equipment & Methods (CVEN 3246) – **Fall and Spring**
Concentration –	AREN 4506 Project Management I (CVEN 3246) – **Fall and Spring**
	AREN 4606 Project Management II (CVEN 3246, AREN 4506) **- Spring**

ELECTIVE REQUIREMENTS

Basic Engineering Elective – Students who do not take GEEN 1400 may substitute any 3-credit technical course given in the engineering college with a designator ASEN, AREN, APPM, CHEN, COEN, CVEN, CSCI, ECEN, EVEN, GEEN, or MCEN, or other course approved by the CEAE Curriculum Committee. Remedial courses (precalculus, etc.) or courses approved as HSS electives may not be used.

Free Elective – Any college-level course, except: cannot be remedial courses needed to fulfill deficiencies (algebra, trigonometry, precalculus, introductory chemistry, etc.) and cannot be similar to courses used toward graduation requirements (algebra-based physics, etc.).

Humanities and Social Science (HSS) Elective – See the College requirements and list of approved courses at www.colorado.edu/engineering/academics/policies/HSS.

Technical Elective – Generally, an upper-division (3000+) science or engineering course with technical content. All upper-division AREN/CVEN courses are technical electives; up to 6 credits outside of AREN/CVEN may be selected with faculty advisor consent. Up to 3 credits of independent study, undergraduate research, or the following ROTC courses are acceptable as technical elective credit: AIRR 3010 or NAVR 4010. See the CEAE website for a list of approved technical electives for AREN students.