



**BACHELOR OF SCIENCE IN ARCHITECTURAL ENGINEERING (BS ARCE)
THE UNIVERSITY OF KANSAS (KU)**



ELECTIVES LIST FOR KU CORE STUDENTS

ENGINEERING ELECTIVES

During or before your fourth year in the KU BS ARCE degree program you will choose an area of technical emphasis. These emphases are 1) Building Lighting and Electrical Systems, 2) Building Mechanical and Energy Systems, 3) Building Structural Systems, and 4) Building Construction Management. Choosing a hybrid or emerging area of emphasis such as Sustainability, Pre-Architecture (for KU's Master of Architecture), or Fire Protection is appropriate too.

In support of the technical emphasis, the curriculum includes three credit-hours of engineering science (ES) electives and six to nine credit-hours of engineering design (ED) electives. In the following tables the asterisked (*) courses are highly recommended for undergraduate students; higher-level courses may be more appropriately reserved for graduate study. When you are ready to enroll in elective courses be sure to obtain an updated version of this *Electives List* from the CEAE/ARCE website and to discuss your options fully with your faculty advisor.

BUILDING LIGHTING AND ELECTRICAL SYSTEMS

Dept./No.	Course Title	Credit-Hours
ME 612 OR C&PE 521	Heat Transfer	3* (Engineering Science = ES)
ARCE 641	Power Systems Engineering II	3* (Engineering Design = ED)
ARCE 644	Electrical Machines & Drives	3* (ED)
ARCE 645	Electrical Energy Production & Storage	3* (ED)
ARCE 651	Illuminating Engineering II	3* (ED)
ARCE 663	Energy Management	3 (ED)
ARCE 760	Automatic Control	3 (ED)
ARCH 520	Architectural Acoustics	3* (ED, or AD)
ARCH 521	Electro-Acoustics	3* (ED, or AD)

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BUILDING MECHANICAL AND ENERGY SYSTEMS

Dept./No.	Course Title	Credit-Hours
ME 612 OR C&PE 521	Heat Transfer	3* (Engineering Science = ES)
ARCE 662	Water Systems Design (if _not_ taking ARCE 681 w/Rock)	3* (Engineering Design = ED)
ARCE 663	Energy Management	3* (ED)
ARCE 664	Fire Protection Engineering	3* (ED)
ARCE 665	Solar Energy Systems Design	3* (ED)
ARCE 675	Sound and Vibration Control	3* (ED)
ARCE 760	Automatic Control	3* (ED)
ARCE 764	Advanced Thermal Analysis of Buildings	3* (ED)

BUILDING STRUCTURAL SYSTEMS

Dept./No.	Course Title	Credit-Hours
CE 487	Soil Mechanics	4* (3 ES, 1 ED)
CE 588	Foundation Engineering	3* (ED)
CE 763	Design of Prestressed Concrete Structures	3 (ED)
CE 764	Advanced Design of Reinforced Concrete Structures	3 (ED)
CE 765	Advanced Steel Design – Building Structures	3 (ED)

BUILDING CONSTRUCTION MANAGEMENT

Dept./No.	Course Title	Credit-Hours
CE 240	Surveying	3* (Engineering Science = ES)
CMGT 701	Construction Planning and Scheduling	3 (Engineering Design = ED)
CMGT 702	Construction Equipment & Methods	3 (ED)
CMGT 703	Construction Quality, Productivity, and Safety	3 (ED)
CMGT 704	Construction Estimating & Bidding	3 (ED)
CMGT 705	Construction Contracts, Bonds, & Insurance	3 (ED)
CMGT 708	Introduction to Sustainable Design & Construction	3* (ED)
CMGT 709	International Construction Management	3 (ED)
CMGT 790	Construction Seminar	3 (ED)

ARCHITECTURAL DESIGN ELECTIVE

The BS ARCE curriculum includes a three credit-hour “architectural or engineering design” elective. Many architectural design (AD) electives are shown below with the asterisked (*) courses being popular or highly recommended. Some courses require permission to enroll from the Architecture Program in Marvin Hall; Pre-Master of Architecture (M.ARCH) students should choose their electives carefully with advice from their ARCE faculty advisers and the Architecture Program office. Architectural (ARCH) structural, mechanical, or lighting/electrical systems courses may not be taken for credit toward the BS ARCE without petition. ARCH 515 may not be taken for credit toward the BS ARCE because it substantially duplicates the content of ARCE 217. Engineering design electives are selected from the preceding Engineering Electives tables.

ARCHITECTURAL DESIGN

Dept./No.	Course Title	Credit-Hours
ARCH 209	Architectural Design II, or another in-sequence studio above ARCH 200	6* (Architectural Design = AD)
ARCH 360	Introduction to Landscape Architecture	3 (AD)
ARCH 520	Architectural Acoustics	3* (AD)
ARCH 521	Electro-Acoustics	3* (AD)
ARCH 552	Ethics & Leadership in Professional Practice	3* (AD)
ARCH 560	Site Planning	3 (AD)
ARCH 577	Marketing Architectural Services	3* (AD)
ARCH 600	Special Topics in Architecture (approved topics only; e.g., <i>not</i> blacksmithing)	3 (AD)
ARCH 618	Architectural Photography	3* (AD)
ARCH 629	Listening to Architecture	3 (AD)
ARCH 630	Theory & Context of Architecture	3 (AD)
ARCH 648	Historic Preservation	3 (AD)
ARCH 658	Programming	3 (AD)
ARCH 665	History of Urban Design	3 (AD)
ARCH 690	Architecture Study Abroad	3-6* (AD)

BASIC SCIENCE ELECTIVE

The BS ARCE curriculum includes a three credit-hour basic science (“N”-coded courses in the *KU Catalog* and *Schedule of Classes*) elective course. There are many “N” courses available, and some examples are shown below. MATH and computer science courses may not be taken as N electives toward the BS ARCE. The asterisked (*) courses below are popular and/or highly recommended.

BASIC SCIENCE ELECTIVE COURSES

Dept./No.	Course Title	Credit-Hours
ANTH 104	Fundamentals of Physical Anthropology	4
ASTR 191	Contemporary Astronomy	3
ATMO 105	Introductory Meteorology	5*
ATMO 220	Unusual Weather	3
BIOL 100	Principles of Biology	3
CHEM 135	General Chemistry II (if completed CHEM 130, not CHEM 150)	5
EVRN/GEOG 148	Scientific Principles of Environmental Studies	3*
GEOG 104	Principles of Physical Geography	3
GEOL 101	Introduction to Geology	3*
GEOL 105	History of the Earth	3*
PHSX 313	General Physics III	3*
SPLH 663	Principles of Hearing Science	3

Ideally the student’s area of technical emphasis should be selected before completing the basic science elective course, but this often is not practical. If possible, a student pursuing the Structural or Construction emphasis should take a geology course. Those interested in Mechanical and Energy Systems should take EVRN 148, or ATMO 105 or 220. Lighting-emphasis students should take PHSX 313.

KU CORE ELECTIVES

As of mid-2013, the University of Kansas requires all new undergraduates, including transfer students, to complete the *KU Core*. It is the obligation of each student to ensure that he or she meets its requirements; details can be found via kucore.ku.edu.

The BS ARCE curriculum requires already many courses that fulfill most of the goals and learning outcomes of the *KU Core*, but four other courses are still needed for:

General Education (GE)

Goal 3, Breadth of Knowledge: the Social Sciences (GE3S on the BS ARCE curriculum sheet)

Advanced Education (AE)

Goal 4, Culture and Diversity; Learning Outcome 1, Human Diversity (AE4.1)

Goal 4, Culture and Diversity; Learning Outcome 2, Global Awareness (AE4.2)

Goal 5, Social Responsibility and Awareness; Learning Outcome 1 (AE5.1)

Four three-credit-hour electives are provided in the curriculum for meeting these requirements. Students are to select electives that meet the *KU Core*'s requirements via the lists provided on kucore.ku.edu, for example. Because approved courses for the *KU Core* will vary, it is advised that each student print and retain the list showing that each chosen course, when completed, met the specific requirement at that time.