American History
(UPPER)
Texas A&M University
Core Curriculum Cover Sheet
Initial Request for a course to be considered for the Fall 2014 Core Curriculum

1. This request is submitted by (department name): ARCHITECTURE

2. Course prefix and number: ARCH 345

3. Texas Common Course Number:

4. Complete course title: HISTORY OF BUILDING TECHNOLOGY

5. Semester credit hours:

6. This request is for consideration in the following Foundational Component Area:

☐ Communication
☐ Mathematics
☐ Life and Physical Sciences
☐ Language, Philosophy and Culture

☐ Creative Arts
☐ American History
☐ Government/Political Science
☐ Social and Behavioral Sciences

CURRENT CORE: YES

7. This course should also be considered for International and Cultural Diversity (ICD) designation:

☐ Yes
☐ No

8. How frequently will the class be offered? Spring: 1

9. Number of class sections per semester: Spring: 1

Fall: 100 New instructor took over class in spring 2013 – enrollment kept low for one semester for course development. Expect to increase spring 2014

10. Number of students per semester: 

11. Historic annual enrollment for the last three years: Spring 2013: 47 Spring 2011: 110 Fall 2009: 119

This completed form must be attached to a course syllabus that sufficiently and specifically details the appropriate core objectives through multiple lectures, outside activities, assignments, etc. Representative from department submitting request should be in attendance when considered by the Core Curriculum Council.

12. 

13. Submitted by:

Course Instructor

Date 6-9-2013

14. Department Head

Date 6-10-13

15. College Dean/Designee

Date 6-11-13

For additional information regarding core curriculum, visit the Texas Higher Education Coordinating Board website at

See form instructions for submission/approval process.

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Core Curriculum

Initial Request for a Course Addition to the Fall 2014 Core Curriculum

Foundational Component Area: American History

In the box below, describe how this course meets the Foundational Component Area description for American History. Courses in this category focus on the consideration of past events and ideas relative to the United States, with the option of including Texas History for a portion of this component area. Courses involve the interaction of individuals, communities, states, the nation, and the world, considering how these interactions have contributed to the development of the United States and its global role.

The proposed course must contain all elements of the Foundational Component Area. How does the proposed course specifically address the Foundational Component Area definition above?

ARCH 345, History of Building Technology is a chronological development of civilization and building technology from prehistoric cultures to present; classic and modern materials, structural devices past and present, machine-produced products, prefabrication, construction methodology and servicing. Upon successful completion of this course, students will be able to:

- To understand the evolution of building technology as a manifestation of culture in the United States.
- Become aware of different ways old and new building materials, systems, and construction techniques can be accepted or rejected by mainstream practice.
- To demonstrate awareness of the scope and variety of works in architecture and humanities within international, historical and social context.
- Build a chronological framework for understanding the development of construction/engineering techniques.
- To develop and communicate an appreciation for the history, aesthetics and technological principles that guide or govern the humanities and architecture in the US and in the world.
- Apply critical thinking to theories in the history of building technology

Core Objectives

Describe how the proposed course develops the required core objectives below by indicating how each learning objective will be addressed, what specific strategies will be used for each objective and how student learning of each objective will be evaluated.

The proposed course is required to contain each element of the Core Objective.

Critical Thinking (to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information):

ARCH 345 addresses the Core Critical Thinking Objectives through the critical examination of factual data and theories related to the development of the human-designed and built environment, the origins and the evolution of ideas related to building technology, and important innovations in building form, material and technique.

The following critical thinking skills will be assessed on exams, a class project with class presentation and through in class activities and discussions

- Students will analyze building technology through illustrations and discussions and make inferences concerning the essential elements, relationships, and organizing principles in the history of the design and development of technology.
- Students will analyze and evaluate data concerning building technology precedents and concepts that have impacted the form of the built environment from antiquity to the present day in the United States.
- Students will investigate and interpret evidence for the transmission of innovations across time and
Texas A&M University

Core Curriculum

Initial Request for a Course Addition to the Fall 2014 Core Curriculum

cultures and evaluate the strengths and weaknesses of different theories concerning cultural diffusion
and/or parallel developments in building technology

• Students will synthesize information from diverse historical/cultural precedents, and formulate innovative
  sets of relationships or guidelines that could be applied to other contexts.
• Students will develop critical thinking with their research with one another, and sharing ideas with their
  project team members where they will inquire, research, synthesize and develop a critical written and
  demonstrative response to particular topics related to the course subject.

Communication (to include effective development, interpretation and expression of ideas through written, oral and
visual communication):

ARCH 345 addresses the Core Communication Objective by teaching students how to analyze and interpret
(through readings and lecture – both through verbal and visual images) building technology and how to describe
defining characteristics using accurate and technical vocabulary.

The following aspects of communication skills will be assessed on exams, a class project with class presentation,
and through in class activities and discussions

• Students will learn methods of visual communication, analysis and interpretation through work with:
  illustrations (plans elevations, sections, details), photographs, and other visual media.
• Students will, as a small group, thoroughly investigate a building technology. They will present this
  building technology through a class demonstration of this technology and through a turned in written and
  graphic report.
• Students will access relevant multi-media resources and explain in class what they have learned as the
  most important history technology concepts reflected in the built structure
• Students will engage in oral communication through class discussions and formulate accurate and
  appropriate responses and questions during lectures.

Social Responsibility (to include intercultural competence, knowledge of civic responsibility, and the ability to engage
effectively in regional, national, and global communities):

ARCH 345 addresses the Core Social Responsibility Objective by considering the cultural parallel and divergent
traditions of building technologies of materials, construction methodology and building structures from around the
United States and the world. It teaches students to appreciate, understand and respect the built environment of the
diverse cultures and belief systems that form the foundations of the modern world.

The following aspects of social responsibility skills will be assessed on exams, a class project with class presentation,
and through in class activities and discussions

• Students will demonstrate intercultural competence by explaining how the human-designed and built
  environment can be understood as expressions of culture at local, regional, national, and global scales,
  and how the culturally encoded meanings of building technology can change over time.
• Students will compare the societal roles and responsibilities of building technology in their own and other
  cultures.
• Students will demonstrate the built environment designers’ social responsibility in fostering sustainability of
  the environment and health and wellbeing of the people living in the environment

Personal Responsibility (to include the ability to connect choices, actions and consequences to ethical decision - making):
Texas A&M University

Core Curriculum

Initial Request for a Course Addition to the Fall 2014 Core Curriculum

ARCH 345 addresses the Core Personal Responsibility Objective by requiring students to identify and articulate how individual or group behavior throughout building technology history have contributed to social, economic and ethical choices.

The following aspects of personal responsibility will be assessed on exams, a class project with class presentation, and through in class activities and discussions:

- Students will compare individual behavior and lifestyle choices to the affects upon resource use and availability.
- Students will be exposed to concepts of built environmental ethics, responsibility and sensitivity.
- Students will understand different approaches at varying scales, contexts, cultures and broader global applications of building technology.

Please be aware that instructors should be prepared to submit samples/examples of student work as part of the future course recertification process.
Course title and number ARCH 345
Term Spring 2013
Meeting times and location T-Th 8-9:15 AM ARCC 207

Course Description and Prerequisites

345. History of Building Technology. (3-0). Credit 3. Chronological development of civilization and building technology from prehistoric cultures to present; classic and modern materials, structural devices past and present, machine-produced products, prefabrication, construction methodology and servicing.
Prerequisites: Junior or Senior Classification

Learning Outcomes or Course Objectives

- To understand the evolution of building technology as a manifestation of culture in the United States.
- Become aware of different ways old and new building materials, systems, and construction techniques can be accepted or rejected by mainstream practice.
- To demonstrate awareness of the scope and variety of works in architecture and humanities within international, historical and social context.
- Build a chronological framework for understanding the development of construction/engineering techniques.
- To develop and communicate an appreciation for the history, aesthetics and technological principles that guide or govern the humanities and architecture in the US and in the world.
- Apply critical thinking to theories in the history of building technology

Instructor Information

Name Shelley D. Holliday
Telephone number 979 845.7885 Office 979.255 4495 Cell
Email address
Office hours T-Th 11-12 M-W-F 1-2 Open Door Polity – by Appointment
Office location Langford Architecture Building ARCA 326

Textbook and/or Resource Material

Required

Recommended
Historic American Buildings Survey/Historic American Engineering Record
Various other notes and handouts

Notes:
Copyright Statement: The handouts used in this course are copyrighted. By “handouts,” I mean all materials generated for this class, which include but are not limited to syllabi, assignments, links to web-sites, in class materials such as PowerPoint presentations, and additional problem sets. Because these are copyrighted, you do not have the right to print/copy the handouts, unless I expressly grant permission.
**Grading Policies**

Specifically, your letter grade for the course will be determined based on homework assignments, projects, attendance and participation, and exams. Late submissions will not be accepted without university excused absence documentation. See University Rules and Regulations:

- **Project**: 25%
- **Homework (and in class experiments)**: 25%
- **Examinations (2 at 20%)**: 40%
- **Attendance, Participation (must be in attendance to participate) and professional evaluation**: 10%

**Grades:**
- A > 90%
- 90% > B > 80%
- 80% > C > 70%
- 70% > D > 60%
- F < 60%

**Course Topics, Calendar of Activities, Major Assignment Dates**

**This schedule is subject to change at any time throughout the semester.**

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topic</th>
<th>Reading/Reference</th>
<th>Assignment</th>
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<tbody>
<tr>
<td>1</td>
<td>15 January 2013</td>
<td>Syllabus Review/Overview/Introduction What Makes a Structure Great?</td>
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<td></td>
<td>17 January 2013</td>
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<td>2</td>
<td>22 January 2013</td>
<td>Favorite Historical Structure</td>
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<td></td>
<td>24 January 2013</td>
<td>Science of Structure</td>
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<td>3</td>
<td>29 January 2013</td>
<td>Science of Structure/Material Properties</td>
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<td></td>
<td>31 January 2013</td>
<td>Columns and Buckling – Going Up</td>
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<td>4</td>
<td>5 February 2013</td>
<td>Beams and Bending – Going Across Triangles! Power of the Truss!</td>
<td>Ch 5-7</td>
<td>#1 – Favorite Historical Structure</td>
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<td>7 February 2013</td>
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<td>5</td>
<td>12 February 2013</td>
<td>Cables and Arches – Parabola/Catenary John Roebling – American Civil Engineer Structural Systems</td>
<td>Ch 4</td>
<td>#2 – Top Columns/Tension Members</td>
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<td>14 February 2013</td>
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<td>#3 – Top Beams</td>
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<td>6</td>
<td>19 February 2013</td>
<td>What we learned Egypt/Greece and brought to America</td>
<td>Ch 1</td>
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<td></td>
<td>21 February 2013</td>
<td>Rome to America</td>
<td>Ch 1</td>
<td>Group chosen for project</td>
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<td>7</td>
<td>26 February 2013</td>
<td>Rome's Historical Contributions</td>
<td>Ch 1</td>
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<td></td>
<td>28 February 2013</td>
<td>Cathedrals</td>
<td>Ch 2</td>
<td>Project Determined</td>
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<td>8</td>
<td>5 March 2013</td>
<td>Cathedrals Continued</td>
<td>Ch 2</td>
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<td></td>
<td>7 March 2013</td>
<td>Domes (From Rome to the Astrodome)</td>
<td>Ch 1-3</td>
<td>Outline/Demonstration/Goals Project</td>
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<td>11-15 March 2013</td>
<td>Spring Break</td>
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<td>9</td>
<td>19 March 2013</td>
<td>Arch Bridges in Iron (first in US)/ Review</td>
<td>Ch 5-7</td>
<td>Exam 1</td>
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<td>21 March 2013</td>
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<td>10</td>
<td>26 March 2013</td>
<td>US Suspension Bridges - Cables</td>
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<td>#6 - Top Bridges</td>
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<td></td>
<td>28 March 2013</td>
<td>US Suspension Bridges - Wind</td>
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<td>George Washington/Golden Gate/Brooklyn Bridges</td>
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<td>11</td>
<td>2 April 2013</td>
<td>US Cantilever Bridges</td>
<td>Ch 5-7</td>
<td>Project Due</td>
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<td>4 April 2013</td>
<td>Iron and Steel in the United States</td>
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<td>12</td>
<td>9 April 2013</td>
<td>UPWARDS – Skyscraper Race</td>
<td>Ch 8-9</td>
<td>#7 – Top Skyscrapers</td>
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<td>11 April 2013</td>
<td>From Chicago to New York Concrete Beauty (from Ingalls Building-</td>
<td>Ch 6-8</td>
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<td></td>
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<td>Cincinnati OH, worlds 4th reinforced concrete skyscraper till today)</td>
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<td>13</td>
<td>16 April 2013</td>
<td>Thin Shell Concrete Anton Tedesco – Father of Thin-Shell Concrete in America Long Span Roof Structure (Astrodome)</td>
<td>Ch 4,8,9</td>
<td>#8 – Top Concrete</td>
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<td>18 April 2013</td>
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<td>Ch 6,7,9</td>
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<td>14</td>
<td>23 April 2013</td>
<td>Tension Structure</td>
<td>Ch 9</td>
<td>#9 Top Tension</td>
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<td>25 April 2013</td>
<td>Strategies for: On Your Own</td>
<td>Ch 8</td>
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<td></td>
<td>Monday, 6 May 2013</td>
<td>Final Exam (Per University Schedule)</td>
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The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, in Cain Hall, Room B118, or call 845-1637. For additional information visit

Student Conduct
Academic Integrity

Academic Integrity will follow the Aggie Honor Code.

"An Aggie does not lie, cheat or steal, or tolerate those who do."

Upon admission to the Texas A&M University, a student immediately assumes a commitment to uphold the Honor Code, to accept responsibility for learning, and to follow the philosophy and rules of the Honor System. Students will be required to state their commitment on examinations, research papers, and other academic work. Ignorance of the rules does not exclude any member of the TAMU from the requirements or the processes of the Honor System. For additional information Refer to the Honor Council Rules and Procedures.

Each student will be asked to sign this statement for exams, homework and projects in this course:

"On my honor, as an Aggie, I have neither given nor received unauthorized aid on this academic work."

It is the mission of the Aggie Honor System Office to serve as a centralized system established to respond fairly to academic violation of the honor code at Texas A&M University.

The Texas A&M University Student Rules provide the official definition of scholastic dishonesty and acts that are characterized as scholastically dishonest at:

Attendance:

The University views class attendance as the responsibility of an individual student. Attendance is essential to complete the course successfully. University rules related to excused and unexcused absences are located online at

It is expected that the student will attend all classes and complete all assignments. Attendance will be taken periodically. No phantom assignments will be accepted from those not in attendances without prior consent from the professor. Excessive unexcused absences will result in a lowering of the final grade. Project due dates will be provided in the project statements.

Excused Absences: Except for absences due to religious obligations, the student must notify his or her instructor in writing (acknowledged e-mail message is acceptable) prior to the date of absence if such notification is feasible. In cases where advance notification is not feasible (accident or emergency) the student must provide notification by the end of the second working day after the absence. This notification should include an explanation of why notice could not be sent prior to the class. If the is excused, the instructor must either provide the student with an opportunity to make up any quiz, exam or other graded activities or provide a satisfactory alternative to be completed within 30 calendar days from the last day of the absence.

Unexcused Absences: There will be no opportunity for the students to make up work missed because of an unexcused absence.

The student is responsible for providing satisfactory evidence to the instructor to substantiate the reason for an absence. Students are advised to consult the University regulations for a list of authorized absences.

Excused Absences for Religious Holy Days: Texas House Bill 256 (effective 9/1/03) states "An institution of higher education shall excuse a student from attending classes or other required activities, including examinations, for the observance of a religious holy day, including travel for that purpose. A student whose absence is excused under this subsection may not be penalized for that absence and shall be allowed to take an examination or complete an assignment from which the student is excused within a reasonable amount of time after the absence."