Strategic Plan

Department of Construction Management
Overview

The University of Arkansas at Little Rock’s Construction Management Department is one of six departments within the Donaghey College of Information Science and Systems Engineering. The American Council of Construction Education accredits the program of study and the Department/faculty are active members of the Associated Schools of Construction. The Construction Management Department continues to grow each year and is currently ranked as one of the largest departments on campus. Each graduate has several employment opportunities to choose from and is offered a high entry-level salary.

The Construction Management Department will become the preeminent regional program for applied construction research, advanced construction methods, safety innovation, and computer modeling applications.

MISSION STATEMENT

To provide a comprehensive program of educational, scholarly, and service activities that prepare students for employment in the construction industry and related fields at the professional level through specialized managerial, financial, construction, and computer technology course work. The integrated program of study will ensure student enhancement and advancement of quality and safety within the construction industry and built environment. This will be accomplished in concurrence with the missions of the Donaghey College of Information Science and Systems Engineering and UALR.

STUDENT OUTCOMES

The Construction Management Department must produce graduates who have the following skills and commitments:

Specialized and Management Skills:

1. The ability to apply the knowledge of mathematics, physical sciences, construction science, and business fundamentals to manage the construction process.
2. The ability to recognize, rationalize, and solve construction problems.
3. The ability to effectively use oral, written, and non-verbal communications.
4. A comprehensive knowledge of and an appreciation of the power of information management, computer technologies, and communication systems.
5. An understanding of construction applications for 3D modeling, 4D modeling, and virtual reality technology.
6. An understanding of and appreciation for the need to function within an established hierarchy, coupled with an inquiring mind and a willingness to challenge the status quo when necessary.

People Skills:
1. An appreciation of the need for and the power of multi-disciplinary teams, and the ability to function as a member of one.
2. A recognition and understanding of the human aspect of the construction profession and a commitment to fair, responsible management of individuals.

A Personal Commitment:
1. A personal work ethic that appreciates and embodies the industry's need for hard work, irregular hours, periodic relocation, and a "can-do" attitude.
2. A recognition that change is inevitable and that it brings opportunity for improvement.

A Commitment to the Profession:
1. An understanding of the ethical standards of the construction profession and a commitment to practice and promote them.
2. A recognition of the need for and the commitment to pursue professional recognition, participation in professional organizations, and continuing education.

A Commitment to Society:
1. A commitment of service to the community that provides the basis for public higher education and to humanity for the sake of giving back.
2. A willingness to accept and promote diversity of people, ideas, opinions, and backgrounds.

EDUCATIONAL OBJECTIVES
1. To provide students with the ability to recognize and independently diagnose construction-related problems accurately, develop creative alternatives, and implement practical and effective solutions.
2. To have students demonstrate the ability to plan, schedule, and control work activities in order to complete a project safely and on time and under budget.
3. To provide students with the ability to understand the important issues within the construction industry and the related areas of management; accounting; economics; business law; environmental law; safety compliance; building code and consensus standard requirements; manufacturing and fabrication of building mediums; materials; and equipment.
4. Provide students with the ability to apply basic construction-related design theory within the areas of structural steel; mechanical and electrical systems; and concrete, wood, and soil mechanics.
RESEARCH OBJECTIVES

1. Generating new knowledge to expand the body of knowledge of construction science and to advance the profession of construction management.
2. Exploring the integration of 3D and 4D modeling with virtual reality technology.
3. Advancing safety technology innovation and safety management.
4. Continuing the development of distance learning techniques.

SERVICE LEARNING OBJECTIVES

1. Allow students to work with a diverse group to mobilize and complete construction activities and projects.
2. Provide an opportunity for students to design, plan, estimate, schedule, document, control, resource, and implement small community-based projects.
3. To instill a commitment of service to the campus, community, profession, and humanity.

FACULTY OBJECTIVES

1. Providing students with exceptional applied technology and management-intensive educations that are highly interactive with faculty and industry that meet the specific needs of the regional workforce.
2. Exploring and discovering new applications of existing and emerging technologies in a scholarly manner so that they can be used to solve problems.
3. Working with industry to integrate real-world solutions and cutting edge technologies into course projects.
4. Collaborating with colleagues from UALR and other institutions of higher education on applied research and educational projects.
5. Proactively updating the Construction Management Department’s curricula to ensure that students are able to meet the dynamic demands of the Arkansas construction industry.

DEPARTMENTAL OBJECTIVES

1. To provide a positive environment that promotes the scholarship of teaching, research, and service with the incorporation of collaboration, teamwork, discovery, and professional development.
2. To establish and maintain the institutional support and financial resources to recruit, develop, and retain faculty and students who are committed to fulfilling the educational objectives and outcomes of the Construction Management Department.
3. To maintain accreditation by the American Council for Construction Education.
4. To maintain the Department's reputation for fostering a "student friendly" environment, responsive to students' needs and concerns, where students are encouraged to interact with staff and faculty at all times.

5. To improve the Department's relationships with industry on a continuing basis.

6. To strengthen the professional organization's student chapters and Sigma Lambda Chi International Honor Society. The student organizations offer leadership opportunities, foster team activities, encourage service endeavors, mandate academic excellence, and provide an invaluable supplement to the program of study.

7. To require professional certification as proposed by the American Institute of Constructors as a means of validation of construction management as a profession.

STRATEGIC GOALS

1. Recruit and retain outstanding faculty and staff to ensure that educational, research, service learning, faculty, and departmental objectives are accomplished.

2. Continue to develop effective and relevant undergraduate curricula to ensure that graduates satisfy the requirements for Student Outcomes.

3. Recruit and retain outstanding students who have the intellect and aptitude to complete the Construction Management Department’s program of study.

4. Organize and implement a Construction Management Alumni Association.

5. Increase the donations for the Construction Management scholarship funds.

6. Institute an ABET accredited Bachelor of Science in Construction Engineering Management.

7. Initiate an on-line minor in Construction Management.

8. Create an Associate degree for Construction Site Management.


10. Develop courses that integrate 3D and 4D computer modeling applications with virtual reality technology.

11. Create an Associate degree that focuses on sustainable construction and LEEDS.

STRATEGIC PRIORITIES
Priority 1

Recruit and retain outstanding faculty and staff to ensure that educational, research, service learning, faculty, and departmental objectives are accomplished.

General Requirements: The Construction Management Department currently offers the 23 required construction management courses during both the Fall and Spring semesters. Nearly all the lower level courses have multiple section offerings during the day and evening. Lower level on-line sections are also offered to accommodate working students and students serving in the military. The course offerings allow students to complete their degree requirements in a timely manner and have attributed to the rapid growth of the Department and retention of students. Seven part-time faculty members are required for the evening, Saturday, and special topic courses. Additional full time and part-time faculty will be needed if the current program continues to grow or if other programs are implemented in the future.

Execution: The Department will request funding for additional full-time faculty members for the 2006-2007 fiscal year. Part-time funding will continue to be requested on an as needed basis.

Priority 2

Continue to develop effective and relevant undergraduate curricula to ensure that graduates satisfy the requirements for Student Outcomes.

General Requirements: The current curriculum will be revised to reflect the new changes required by ACCE and the current use of Banner to enforce prerequisites. Several new courses will be added to allow for the addition of the new Construction Engineering Management program and for post-baccalaureate certification in preparation for the graduate degree. Two critical paths have been identified -- one for construction management courses and the other for construction science courses, which must be completed at the same time concluding with the senior capstone course. An advanced computer applications course was added so that students can develop their own complex spreadsheets for estimating. The objective is for students to be able to integrate their spreadsheets with a cost database that can be updated on a continuous basis with Internet access. Design applications will be added to several courses so that students understand the basic design criteria for structural steel, concrete, formwork, falsework, and engineered wood products. One new design theory and application course will be added to provide more in-depth mechanics of materials for the new CEM program. A new 4D-modeling schedule course will have to be developed to provide advance technology and scheduling skills. Several courses will be duel listed as 4000/5000 level in preparation for the graduate certification and graduate degree.

Execution: Surveys will continue for graduating seniors, alumni, and industry partners to ensure that course content is current. The Advisory Council Curriculum Committee will continue to review course syllabi and provide content feedback. The curriculum changes will be finished and submitted to the College and University committees and councils during Fall 2006 with an implementation target date of Spring 2007.
**Priority 3**

Recruit and retain outstanding students who have the intellect and aptitude to complete the Construction Management Department’s program of study.

**General Requirements:** Currently, the majority of students coming into the program are either first- or second-year college transfers or post-baccalaureate. The number of entering freshman coming from high school has been increasing steadily over the past years. The largest percentage of new students coming into the program is due to personal referrals. Construction associations, contractors, alumni, high school teachers, faculty, and DCISSE recruiting account for the greatest number of new students. The majority of referrals come from someone who is or has been part of the construction industry. Additional efforts are needed in order to increase the number of entering freshman.

Retention is relatively high, considering the employment opportunities available for students. Most losses are due to employment of students that have completed the first two years of the program. By this time, they have enough knowledge for full-time employment, which ends up replacing their education priorities.

**Execution:** Recruiting efforts will focus on high school visits and teachers combined with posting the alumni recruiting CD on our web page. The professionally produced CD has alumni explaining the nature of the industry and how much the program benefited them. The target date for the CD to be posted on the web page is Summer 2006. The CD will be copied and mailed to each high school during Fall 2006. Each faculty member will visit with high schools during Fall 2006 to identify contact teachers. During Spring 2007, teachers will be given the choice of visiting UALR or having faculty members visit their classes.
Priority 4

Organize and implement a Construction Management Alumni Association.

**General Requirements:** The number of graduates is now large enough to begin to have an annual awards banquet honoring graduates, alumni, and others who have made a contribution to the Department. A link needs to be added to the Department web page that provides contact information as well as access to an electronic newsletter.

**Execution:** The current list of alumni needs to be updated and contact information confirmed or revised during the Summer 2006. An alumni awards committee needs to be formed during the Fall 2006 and charged with the task of organizing and implementing the first annual awards banquet in December 2006.

Priority 5

Increase the donations for the Construction Management scholarship funds.

**General Requirements:** The Arkansas Licensing Board is the major contributor to the Department scholarship funds. Several of the funds are not endowed yet and have been listed for years. Efforts need to focus on making sure that every scholarship fund is endowed and is at the maximum endowment level. Additional donors need to be identified and scholarship funds solicited.

**Execution:** Scholarship funds that are not currently endowed need to be identified, and contact information confirmed during Summer 2006. During Fall 2006, we will contact donors and inform them that their funds are not endowed. Need to identify potential donors during Fall 2006 and, with the assistance of Foundation, set up contact time.

Priority 6

Institute an ABET accredited Bachelor of Science in Construction Engineering Management.

**General Requirements:** A new ABET accredited Construction Engineering Management baccalaureate degree will provide Arkansas students who want to seek employment in the construction industry as engineers the ability to obtain their degrees without having to attend an out-of-state institution. The CEM degree is currently not offered in Arkansas, and students seeking the degree must attend institutions like Texas A&M, Purdue, and Stanford to obtain it. The new CEM program of study would utilize the DCISSE engineering core and mechanical engineering courses in combination with upper level CM courses. Several of the upper-level CM courses will have design elements added to their content, and one junior level course will become a senior level course. A new design theory and application course will be added to provide more in-depth mechanics of materials, and a new 4D-modeling course will be developed to incorporate advanced scheduling techniques. A new upper-level methods and materials course will have to be created to cover the CSI MasterFormat topics currently covered in three lower-level courses.
Execution: The proposal for the new CEM program will begin Summer 2006 with letters of endorsement and be finalized and submitted to Higher Education during Fall 2006 for possible Spring 2008 implementation. During Fall 2006, the CM curriculum is scheduled to be updated to include the addition of design elements and a new upper-level methods and materials course and revision of the safety course to a 4000 level. The new design and 4D-modeling course will be part of that revision but will not be offered until additional part-time faculty members can be recruited to teach courses currently taught by full-time faculty. Once the new part-time faculty is in place then full-time faculty can finalize development of the new courses and teach them. The target offer date for these two new courses is Fall 2010.

The ABET accreditation process can start once the new program is approved but will have to be given a low priority during 2008 in preparation of the CM’s ACCE’s accreditation visit scheduled for 2009. ACCE requires one complete year of class assignments at the low, medium, and high level as part of its documentation process. The self-study and course binders will be an additional task for faculty members who are teaching full loads, so the additional ABET process could impact the ACCE visit. The most realistic target date for the ABET accreditation is 2011, depending on how many part-time faculty members have to be mentored and provided with curriculum.

Priority 7
Initiate an on-line minor in Construction Management.

General Requirements: Currently, five courses are offered on-line: CNMG 1305 Drawings and Specifications, CNMG 2310 Materials and Methods I, CNMG 2312 Materials and Methods II, CNMG 2314 Service Systems of Buildings, and CNMG 2323 Construction Administration. The process to develop an on-line course is one semester to develop it, one semester to teach it, and one semester to revise it. The first two semesters’ funds are provided by Off-Campus Programs to pay for a part-time faculty to teach one course in order to provide release time for the developing faculty. CNMG 1301 The Construction Industry, CNMG 3342 Construction Safety, and CNMG 3339 Bid Process are scheduled to be put on-line. One of the problems with an on-line course is that part-time faculty members cannot teach them unless they have WebCT training.

Execution: CNMG 1301 is scheduled to be developed during Spring 2007 for a Fall 2007 implementation. CNMG 3342 is scheduled for development during Summer 2007 for a Spring 2008 offering. CNMG 3339 is scheduled for development during Summer 2008 for a Fall 2008 implementation. This schedule is dependent upon recruiting part-time faculty that is qualified to teach the developing faculty’s courses. The Department has six full-time faculty members and only two are qualified to develop and teach an on-line course.

Priority 8
Create an Associate degree for Construction Site Management.

General Requirements: The CM Department Advisory Council requested that an associate degree be proposed and developed for building construction site managers.
The need for site managers is one of the most critical issues facing the industry today. The average project manager controls about six projects and needs at least two site managers per project. The present site managers are retiring at a much faster rate than replacements can be provided. The current trend in the industry is to pay CM four-year graduates more for being an entry-level site manager than an entry-level project manager. Currently, there is not a two-year construction program in Arkansas that has an emphasis in building construction site management. The few colleges that do have two-year construction programs have a residential construction emphasis. Since residential construction, in general, does not use the CSI MasterFormat, AIA or AGC contract documents, project manuals, or project control, the graduates from the two-year programs are not in demand by building contractors. The individual building contractors have set up in-house training for site managers with mixed results. The CM Department’s two-year program would be developed as a terminal degree that would also allow graduates to transition into the four-year program with additional course work.

The proposed two-year degree would require the development of at least two courses that include estimating, scheduling, safety, contracts, supervision, and equipment usage. This is accomplished by creating combination courses that cover the topics at the sophomore level. One course could include estimating, scheduling, and contracts while another covers supervision, safety, and equipment usage. The remainder of the curriculum would be the lower level courses required for the four-year degree. The degree will require a full-time coordinator to administer the program and to advise students, as well as a designated classroom.

**Execution:** The curriculum changes will be finished and submitted to the College and University committees and councils during Spring 2007 with an implementation target date of Fall 2007. The new classroom will be located in the mall space and is scheduled to be completed by Summer 2008. The full-time coordinator will have to be one of the current full-time faculty members.

**Priority 9**

**Develop Construction Management and Construction Engineering Management graduate programs.**

**General Requirements:** One of the recommendations of the College Advisory Council was to create a Master’s level CM graduate program. This was also a recommendation from ACCE under Undeveloped Potentials. Upon recommendation from the Graduate College, a graduate certification will be developed by duel listing the 4000 level courses as 5000 first. Then once this is in place, additional graduate courses will be created for a Master of Science in CM. Once the ABET accredited new CEM program is in place, a proposal for a new CEM Master of Science will be developed.

**Execution:** The duel listing of 4000 level courses will be submitted to the College curriculum committees and forwarded to the University curriculum councils for approval during the Fall 2006 semester. Since the graduate certificate can be approved at the University level, the proposal will be done at the same time. The proposal for the new MS in CM will be completed also in Fall 2006 with a target date of 2008 for implementation. The proposal for the new CEM MS program will be submitted for
approval in 2011 with an implementation target date of 2012. The MS programs will require additional full-time faculty members and must be in place before the new programs can be offered to students.

**Priority 10**

**Develop courses that integrate 3D and 4D computer modeling applications with virtual reality technology.**

**General Requirements:** The ability to integrate 3D and 4D computer modeling with virtual reality technology is the future of the construction industry, and applied research is the first step for obtaining that future. The virtual reality technology will be used to develop a futuristic safety model. Images of unsafe acts and conditions on a typical construction site will be programmed into the model. Students will be required to do jobsite inspections in order to identify areas of OSHA non-compliance and complete hazardous analysis reports.

**Execution:** Since only one faculty member has the technical knowledge to do the applied research, the process is dependent on future release time for that person. The research will require a joint effort with the Virtual Reality Center faculty and the CM faculty member who is a Certified Health and Safety Official. If part-time faculty can be recruited to provide faculty release time, then the research could begin Fall 2007.

**Priority 11**

**Create an Associate degree that incorporates green construction and LEEDS.**

**General Requirements:** Green construction issues and technology have advanced to the point that owners are now requiring contractors to use them. This requires contractors to have site managers and field personnel who are qualified in green construction techniques and LEEDS in particular.

**Execution:** The timeline for the proposal is 2011.

**PRIORITY TIMELINE**

2006

- Request funding for additional full-time faculty
- Submit CM curriculum changes for approval
- Place link for the CM recruiting CD on CM web page
- Identify Arkansas high schools that teach construction related classes
- Update contact information for CM alumni and implement CM Alumni Association
- Place link for CM Alumni Association on CM web page
- Identify potential scholarship donors and contact for solicitation of funds
• Submit proposal for new Construction Engineering Management program
• Submit CM duel listed course curriculum changes for approval
• Submit proposal for new CM Master of Science program for approval

2007
• Implement CM curriculum changes
• Meet with high school teachers or classes that provide construction related instruction
• Target date for developing and offering the on-line CNGM 1301, The Construction Industry
• Target date for developing the on-line CNMG 3342, Construction Safety
• Submit curriculum changes and proposal for new associate degree in site management
• Target date for starting the 4D and virtual reality research

2008
• Target date for implementing new CEM program
• Target date for offering the on-line CNMG 3342, Construction Safety
• Target date for developing and offering the on-line CNMG 3339 Bid process
• Complete the new classroom and laboratory space in the Mall

2009
• Start the ABET accreditation process for the new CEM program

2010
• Target date for completing course revisions, developing new courses and offering them for new CEM program

2011
• Target date for completing the ABET accreditation for the new CEM program

2012
• Target date for implementing the new CEM Master of Science program
• Target date for the proposal of the new associate degree in green construction