



GEORGE W. DONAGHEY

EIT

COLLEGE OF ENGINEERING & INFORMATION TECHNOLOGY

DEPARTMENT OF CONSTRUCTION MANAGEMENT AND CIVIL AND CONSTRUCTION ENGINEERING

QUALITY IMPROVEMENT PLAN (QIP)

FOR THE CONSTRUCTION MANAGEMENT DEGREE PROGRAM

Organization

The QIP consists of the Strategic Plan for the educational unit, the degree program assessment plan, and the assessment implementation plan for the degree program. The educational unit is the Department of Construction Management and Civil and Construction Engineering. The degree program is Construction Management. Construction Management is one of five degree programs in the department.

Strategic Plan

**Department of Construction Management and Civil
and Construction Engineering**

Overview

The University of Arkansas at Little Rock's Department of Construction Management and Construction and Civil Engineering is one of six departments within the Donaghey College Engineering and Information Technology. The department is home to several degree programs that share faculty within the educational unit.

- The Bachelor of Science in Construction Management Degree Program is accredited by the American Council for Construction Education (ACCE), <http://www.acce-hq.org>.
- The Bachelor of Science in Construction and Civil Engineering Program is accredited by the Engineering Accreditation Commission of ABET, <http://www.abet.org>.
- The Bachelor of Science in Architectural and Construction Engineering is a new program and will seek accreditation by the Engineering Accreditation Commission of ABET.
- The Bachelor of Science in Environmental Engineering is a new program and will seek accreditation by the Engineering Accreditation Commission of ABET.
- The Master of Science in Construction Management is a program of study for upper level management personnel for the construction industry and assists in preparation for the Certified Professional Constructor Examination (CPC) conducted by the American Institute of Constructors (AIC).

The architectural, engineering, and construction (AEC) industry is the nation's largest industry employing over 10% of the workforce. There is a critical shortage of engineering and construction professionals to fill a variety of rewarding design, managerial, and supervisory roles in this multi-faceted, dynamic industry. That void is continuing to grow. Program graduates receive excellent starting salaries and substantial opportunities for rapid advancement and pay increases as they gain industry experience. Career opportunities can be found throughout Arkansas, regionally, nationally and globally.

The origins of the department date back to the 1970's. The department continues to grow each year and is currently ranked as one of the largest on campus. The department has recently expanded into five degree programs. This rapid growth must be managed and matched with available resources.

This strategic plan for the department is an overall plan for management of all the degree programs in the educational unit. The degree programs in the Department of Construction Management and Construction and Civil Engineering are uniquely interrelated and complementary. No other university in the U.S. offers a program that is accredited in both civil engineering and construction engineering. All of the degree programs in the department interlock with faculty and coursework in an efficient manner to deliver five distinct degree programs. This is done with a precise blend full and part-time faculty with specific skills and backgrounds. This strategic plan is a work-in-

progress and was undertaken to coordinate the objectives and resources needed to accomplish the mission of this unique department.

MISSION STATEMENT

Graduates will be equipped with the necessary knowledge, skills, and experience to achieve success in their chosen engineering and construction fields through a comprehensive program of educational, scholarly, and service activities.

This will be accomplished in concurrence with the missions of the Donaghey College of Engineering and Information Technology and UALR.

GOALS AND OBJECTIVES

1. Provide degree programs responsive to the needs of the construction and engineering industry and potential students of the department.
 - a. Recruit and retain appropriate full and part-time faculty and staff for teaching, research, service learning, and industry support.
 - i. Execution – Utilize budgeted funds for a blend of full and part-time faculty capable of providing the services required. Balance programming with available financial resources.
 - ii. Resources Needed – Faculty and staff budget lines.
 - iii. Performance Criteria – Ability to deliver the desired instructional courses with the desired frequency.
 - b. Deliver course offerings via a combination of face-to-face, hybrid and distance learning methods to meet the needs of students and industry.
 - i. Execution – Develop new methods of delivery for selected courses.
 - ii. Resources Needed – Course development resources at UALR, faculty release time, additional faculty.
 - iii. Performance Criteria – Meet established goals for desired mix of instructional delivery methods.
 - c. Evaluate the viability of new and proposed programs of study.
 - i. Execution – Feasibility study.
 - ii. Resources Needed – Resources needed to implement desirable programs.
 - iii. Performance Criteria – Implementation of identified programs.
 - d. Maintain appropriate academic accreditations.
 - i. Execution – Perform required assessments and meet accrediting standards.
 - ii. Resources Needed – Accreditation fees and coordination release time to perform administrative tasks to support accreditation.
 - e. Maintain the Department's relationships with industry

- i. Execution – Strengthen the alumni network through frequent contact, conduct appropriate research, conduct appropriate professional development and consulting.
 - ii. Resources needed – Institutional support in maintaining alumni database, research that funds release time, match faculty skills with industry needs.
 - iii. Performance Criteria – Number of research contracts, alumni response to surveys, faculty consulting activity.
- 2. Recruit and retain students who have the interest and aptitude to succeed in their chosen program of study in construction or engineering.
 - a. 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
 - i. Execution - Strengthen student organizations by increasing participation student chapter professional organizations.
 - ii. Resources Needed – Appropriate faculty load to support advising student organization, support of industry with time and money.
 - iii. Performance Criteria – Number of student participants and organization events.
 - b. Increase donations for scholarship funds.
 - i. Execution – Increase student participation in industry events using student organizations. Students participate in scholarship, paper writing and other competitions sponsored by industry.
 - ii. Resources Needed – Faculty advisor with adequate time to develop student leaders and organize activities.
 - iii. Performance Criteria – Monetary value of scholarships awarded.
- 3. Deliver curriculum responsive to the needs of industry and students in the 21st Century
 - a. Determine appropriate levels of technology for the educational programs.
 - i. Execution – Survey of industry and peer programs.
 - ii. Resources Needed – Administrative time.
 - iii. Performance Criteria – Analysis of technology survey completed.
 - b. Develop appropriate methods of instructional delivery for student success.
 - i. Execution – Identify courses that would benefit from alternate delivery methods and faculty that are capable of assisting in development.
 - ii. Resources Needed – Administrative time to develop the proposal. Faculty with experience in alternate delivery and course development.
 - iii. Performance Criteria – If opportunities for alternate delivery are identified, courses developed and delivered.

DEPARTMENT OF CONSTRUCTION MANAGEMENT AND CIVIL AND CONSTRUCTION
ENGINEERING

ASSESSMENT PLAN

FOR THE CONSTRUCTION MANAGEMENT DEGREE
PROGRAM

DEGREE PROGRAM MISSION STATEMENT

Graduates will be equipped with the necessary knowledge, skills, and experience to achieve success in their chosen construction fields through a comprehensive program of educational, scholarly, and service activities.

This will be accomplished in concurrence with the missions of the Donaghey College of Engineering and Information Technology and UALR.

DEGREE PROGRAM GOALS AND OBJECTIVES

- 1. Provide degree programs responsive to the needs of the construction industry and potential students in the program.**
 - a. Recruit and retain appropriate full and part-time faculty and staff for teaching, research, service learning, and industry support.**
 - i. Execution – Utilize budgeted funds for a blend of full and part-time faculty capable of providing the services required. Balance programming with available financial resources.**
 - ii. Resources Needed – Faculty and staff budget lines.**
 - iii. Performance Criteria – Ability to deliver the desired instructional courses with the desired frequency.**
 - iv. Assessment Method – Faculty survey**
 - v. Assessment Period – Spring 2017**
 - b. Deliver course offerings via a combination of face-to-face, hybrid and distance learning methods to meet the needs of students and industry.**
 - i. Execution – Develop new methods of delivery for selected courses.**
 - ii. Resources Needed – Course development resources at UALR, faculty release time, additional faculty.**
 - iii. Performance Criteria – Meet established goals for desired mix of instructional delivery methods.**
 - iv. Assessment Method – Survey of students and industry.**
 - v. Assessment Period – Spring 2016**
 - c. Maintain appropriate academic accreditations.**
 - i. Execution – Perform required assessments and meet accrediting standards.**

- ii. **Resources Needed – Accreditation fees and coordination release time to perform administrative tasks to support accreditation.**
 - iii. **Assessment Method – Survey of faculty.**
 - iv. **Assessment Period – Spring 2016.**
 - d. **Maintain the Department's relationships with industry**
 - i. **Execution – Strengthen the alumni network through frequent contact, conduct appropriate research, conduct appropriate professional development and consulting.**
 - ii. **Resources needed – Institutional support in maintaining alumni database, research that funds release time, match faculty skills with industry needs.**
 - iii. **Performance Criteria – Number of research contracts, alumni response to surveys, faculty consulting activity.**
 - iv. **Assessment Method – Survey of alumni and industry**
 - v. **Assessment Period – Spring 2017**
- 2. **Recruit and retain students who have the interest and aptitude to succeed in their chosen program of study in construction or engineering.**
 - a. **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**
 - i. Execution - Strengthen student organizations by increasing participation student chapter professional organizations.
 - ii. Resources Needed – Appropriate faculty load to support advising student organization, support of industry with time and money.
 - iii. Performance Criteria – Number of student participants and organization events.
 - iv. **Assessment Method – Survey of students**
 - v. **Assessment Period – Spring 2015**
 - b. **Increase donations for Construction Management scholarship funds.**
 - i. Execution – Increase student participation in industry events using student organizations. Students participate in scholarship, paper writing and other competitions sponsored by industry.
 - ii. Resources Needed – Faculty advisor with adequate time to develop student leaders and organize activities.
 - iii. Performance Criteria – Monetary value of scholarships awarded.
 - iv. Assessment Method – Survey of students

- v. Assessment Period – Spring 2016
- 3. **Deliver curriculum responsive to the needs of industry and students in the 21st Century**
 - a. **Determine appropriate levels of technology for the educational programs.**
 - i. Execution – Survey of industry and peer programs.
 - ii. Resources Needed – Administrative time.
 - iii. Performance Criteria – Analysis of technology survey completed.
 - iv. **Assessment Method – Survey of students and industry**
 - v. **Assessment Period – Spring 2017**
 - b. **Develop appropriate methods of instructional delivery for student success.**
 - i. Execution – Identify courses that would benefit from alternate delivery methods and faculty that are capable of assisting in development.
 - ii. Resources Needed – Administrative time to develop the proposal. Faculty with experience in alternate delivery and course development.
 - iii. Performance Criteria – If opportunities for alternate delivery are identified, courses developed and delivered.
 - iv. Assessment Method – Survey of students.
 - v. Assessment Period – Spring 2017.

ASSESSMENT TOOLS FOR PROGRAM OBJECTIVES

The main tools for assessment of program objectives are:

- Alumni, faculty and employer surveys – surveys are conducted both manually and electronically for indirect assessment of progress on program objectives. Surveys are useful for determining the attitudes and opinions of the various constituents. The surveys are designed to get general feedback on the relative usefulness of coursework, and perceptions of the various parties regarding the achievement of program goals. The format of the surveys includes a Likert scale and opportunities for specific feedback. Surveys are analyzed for trends and comments are collected and classified for analysis.
- Achievement of specific goals in the unit strategic plan. Some program objectives can be assessed on the basis of specific achievements described in the strategic plan. This is a subjective assessment.

PERFORMANCE CRITERIA FOR PROGRAM OBJECTIVES

The performance criteria for each objective is found under item iii for each measurable item under the degree program goals and objectives.

EVALUATION METHODOLOGY FOR PROGRAM OBJECTIVES

Assuring that assessments are performed and analyzed according to the defined cycle, using the specified tools is the responsibility of the department chair. The results of the analysis and any actions taken are shared via the department website. Results of the analysis are shared with the IAC and faculty. Suggestions for improvement are solicited from the IAC and faculty.

FREQUENCY OF ASSESSMENT FOR PROGRAM OBJECTIVES

The program objectives are assessed, analyzed and reported over a continuous three year cycle as identified in the degree program goals and objectives.

PROGRAM LEARNING OUTCOMES (PLO's)

The program has adopted the 20 required Student Learning Outcomes (SLO's) as PLO's.

1. Create written communications appropriate to the construction discipline.
2. Create oral presentations appropriate to the construction discipline.
3. Create a construction project safety plan.
4. Create construction project cost estimates.
5. Create construction project schedules.
6. Analyze professional decisions based on ethical principles.
7. Analyze construction documents for planning and management of construction processes.
8. Analyze methods, materials, and equipment used to construct projects.
9. Apply construction management skills as a member of a multi-disciplinary team.
10. Apply electronic-based technology to manage the construction process.
11. Apply basic surveying techniques for construction layout and control.
12. Understand different methods of project delivery and the roles and responsibilities of all constituencies involved in the design and construction process.
13. Understand construction risk management.
14. Understand construction accounting and cost control.
15. Understand construction quality assurance and control.
16. Understand construction project control processes.
17. Understand the legal implications of contract, common, and regulatory law to manage a construction project.
18. Understand the basic principles of sustainable construction.
19. Understand the basic principles of structural behavior.
20. Understand the basic principles of mechanical, electrical and piping systems.

ASSESSMENT TOOLS FOR PROGRAM LEARNING OUTCOMES

The main tools for assessment of program objectives are:

- Alumni, faculty and employer surveys – surveys are indirect methods of assessment. They conducted both manually and electronically for indirect assessment of PLO's. Surveys are useful for determining the attitudes and opinions of the various constituents. The surveys are designed to get general feedback on the relative usefulness of coursework, and perceptions of the various parties regarding the achievement of PLO'S. The format if the surveys includes a Likert scale and opportunities for specific feedback. Surveys are analyzed for trends and comments are collected and classified for analysis.
- Embedded course assessments – course assessments are direct assessments and use relevant assignments from a particular course to assess specific PLO's. They are generally performed by the instructor of the course but are carefully designed to support the PLO.
- AC Exam results – certain sections of the AC Exam are used as direct assessments of specific PLO's. Other sections of the AC Exam do not rise to the level necessary for a direct assessment, but can be used as indirect assessments to support PLO's.

PERFORMANCE CRITERIA FOR PROGRAM LEARNING OUTCOMES

The performance criteria for direct assessments is that if 70% of the students score at least 70% on the assessment, the PLO is met. A score below 70% calls for explanation and may require corrective action.

For indirect assessments such as surveys, the performance criteria is 70%. If the average rank on a Likert scale is 70% or above, the PLO is met. A score below 70% calls for explanation and may require corrective action. However, the subjective nature of surveys is recognized. Responses of "Not Applicable" are discounted.

EVALUATION METHODOLOGY FOR PROGRAM LEARNING OUTCOMES

An assessment map consisting of a table that shows the various courses and assessment methods is included. Each PLO is assessed in at least one CNMG course by a direct assessment method. At least two assessments are made for each PLO. The other assessment may be in another CMNG course, a direct or indirect assessment using the AC Exam, or an indirect assessment using a survey.

Assuring that assessments are performed and analyzed according to the defined cycle, using the specified tools is the responsibility of the department chair. The results of the analysis and any actions taken are shared via the department website. Results of the analysis are shared with the IAC and faculty. Suggestions for improvement are solicited from the IAC and faculty.

FREQUENCY OF ASSESSMENT FOR PROGRAM LEARNING OUTCOMES

The program learning outcomes are assessed, analyzed and reported over a continuous three year cycle. The year of assessment is identified on the assessment map.