
Assessment Report for the Construction Management Program

Executive Summary

The annual assessment report provides the opportunity to review the state of the construction management program at Roger Williams University. This annual report covers the academic year beginning in July 2009 and ending in June 2010 (AY 09-10). Its focus is on the academic assessment through the year. Based on a review of the course reports as well as surveys and discussion with students and recent graduates, it is evident that the state of the program is strong.

The program faculty met on May 21, 2010 to review the AY 09-10 academic year and to discuss changes for next year. At this meeting we reviewed all published program outcomes and the metrics we are using to measure each. Reports were also made on our internship program, the CM club, Capstone project, Senior exit surveys, alumni survey, and the AC exam. The meeting agenda and the reports made are attached to this assessment report.

Overall this was a strong year for the Construction Management program. Some of the highlights of the year are as follows:

program faculty worked with the panels to structure the reporting instruments and valuable assessment data were attained. This goal was an adjustment noted in last year's report

Program faculty members also gather input from professional associations such as AGC, ASC, CSI, ACCE and ASCE. At these meetings faculty stay abreast of changes in accreditation standards and construction education "best practices" as regularly reported at these venues. Both permanent and intern employers provided feedback to the faculty on student performance. Formal internship reports are particularly valuable. Professional Advisory Board members also provide valuable support and feedback to the faculty. Program faculty members meet with the board each semester. Tab K includes copies of our meeting minutes.

Within each course assessment report students are provided the opportunity to evaluate their accomplishment of course objectives. This information is used by instructors to modify courses from semester to semester. Faculty members provide formal course reports after each semester and a summary of each course is reviewed and discussed with other faculty from the program. This discussion facilitates adjustment in course coverage and adjustments in the overall program.

Noted last year was the goal to obtain employer and graduate surveys. A graduate survey was conducted, but poor results were attained. The survey form also needs to be constructed in a more quantitative manner to speed processing and the survey questions in the future need to be better tied to stated metrics. Looking ahead it is our plan to better engage program alumni through our newly established Advisory Board Alumni committee. More involvement should generate a stronger connection with the program and better input. An employer survey was not conducted.

Lastly, all metrics have been changed to a 5 point scale with 5 representing most desirable and 1 least. Also, our target for these metrics is a mean and median score of 4 or better.

Adjustments for Next Year

It is still the intention to more formally survey internship employers with regards to both student internship performance as well as student interview performance though this was not done last year. Prior to next year, Dr. Brunnhoeffler, SECCM Internship Coordinator, will work with the Career Center to develop a survey instrument that works for the CM program. Dr. Brunnhoeffler will incorporate the survey results into the annual Internship report he already provides.

3. Program Assessment

The program educational objectives were first presented in that format for the 2007-2008 academic year. These objectives are shown in the table below.

Table 4.3-1 RWU Construction Management Program Educational Objectives

Objectives – Three to Five Years After Graduation, We Expect Our Graduates To:

2. Value the concept of life-long learning and continue to grow intellectually while keeping informed of new concepts and developments in the construction process.

Three of the eight alumni who responded to our survey are currently pursuing an advanced degree or a second bachelor's degree. Graduate employers commented that our graduates display the ability to grasp new concepts and technologies well and also show a strong interest in teaching others. Graduates embrace learning and take regular advantage of in house training offered by their employers. Graduates show the ability to be cross trained to various industry roles. All eight survey respondents are in the process of pursuing or have received a special license or certification.

3. Advance the construction management profession by becoming actively involved in professional associations and societies, serving in professional and community volunteer positions, and acting as a role model for the future generation of constructors and the Roger Williams University Construction Management students.

Seven out of our eight survey respondents are members of professional associations. Alumni involvement on our CM Advisory Board and as members of our capstone review panel has grown. An alumni subcommittee has been formed by the CM Advisory Board and an effort is being made to form a sub-group in the Boston area. Employers report that our graduates have demonstrated a willingness to become involved in community and professional organizations. Graduates have joined Habitat for Humanity, ACE Mentoring, United Way and Rebuilding MA to name a few. Our graduates have become active in AGC's young constructor program in MA, RI and CT. Graduates have also displayed a willingness to mentor others both outside and within their companies.

To better identify the interrelationship between the program educational objectives and the program outcomes, Table 4.3-1, is presented below.

Table 4.3-2 Program Educational Objectives linked to Construction Management Program Outcomes -1.156 TD () TjEMC 5Hg actively ind to Cong and ta0join

a – k Outcomes

Table 4.3-3 Outcome “a” Metrics with Evaluations

| Outcome a: an ability to apply knowledge of mathematics and science to typical Construction Management tasks | | | |
|---|--|------------|--|
| Metrics Associated with Outcome a: | Where Measured | Met | Comments |
| 1. CM student pass rate of the AC exam meets or exceeds the national average | AC Exam | No | RWU score 213 National score 215 |
| 2. For each required construction course with a prerequisite in mathematics, science or engineering, at least 75% of the students who have C or better in the prerequisite course pass the course on the first attempt. | Transcript Review | Yes | |
| 3. All graduating seniors report that they have achieved proficiency in the ability to apply knowledge of mathematics and science to solve construction problems. Proficiency is defined as a score of 1 or 2.0 on a 5 point scale where 1 means proficiency achieved and 5 means proficiency not achieved. | Course Student Survey Student Exit Survey | Yes | |
| 4. Faculty report adequate application of mathematics in construction coursework. | Construction Faculty Course Assessment Report Faculty Program Assessment Report | Yes | Seniors report positively via course surveys |
| 5. At least 85% of all alumni rate their preparation by RWU for the workplace in the ability to apply knowledge of mathematics and science as good to excellent. | Alumni Survey Employer Survey | No | Insignificant sample |

Table 4.3-4 Outcome “b” Metrics with Evaluations

| Outcome b: effective research and problem solving skills applied to typical Construction Management tasks | | | |
|--|-------------------------------------|------------|------------------------|
| Metrics Associated with Outcome b: | Where Measured | Met | Comments |
| 1. 100% of CM students will successfully complete applications in coursework involving research aspects and problem solving techniques. | Transcript Review | Yes | |
| 2. At least 10% of all Construction Management seniors will participate in a competition where their ability to research and solve problems and will be externally judged and assessed. | Student Competitions CM Capstone | Yes | |
| 3. Graduating seniors report that they have achieved proficiency in the ability to solve construction problems. Proficiency is defined of at least a score of 1 or 2 on a 5 point scale where 1 means proficiency achieved and 5 means proficiency not achieved. | Student Exit Survey | Yes | Mean 4.42 and median 4 |
| 4. At least 85% of all alumni rate their preparation by RWU for the workplace in the ability research and solve problems | Alumni Survey Employer Survey | No | Insignificant sample |

Table 4.3-5 Outcome “c” Metrics with Evaluations

| Outcome c: an ability to plan, to organize and to control a construction project | | | |
|---|--|------------|------------------------------------|
| Metrics Associated with Outcome c: | Where Measured | Met | Comments |
| 1. 100% of Construction students participate in a Capstone Project Class that involves a semester long industry sponsored project that demonstrates their ability to successfully plan, organize and control a project. | Capstone Project Juror Evaluations Transcript Review | Yes | |
| 2. Employment Interviewers favorably rate (2 or better) applicants for internship and permanent placement in the applicant’s ability to plan, organize and control a construction project. | Employer Interview Survey | N/A | Need to conduct an employer survey |
| 3. Employers favorably rate (2 or better) previous Construction Management hires graduate’s ability to plan, organize and control a construction project. | Employer Survey | N/A | Need to conduct an employer survey |

Table 4.3-6 Outcome “d” Metrics with Evaluations

Outcome d:

Table 4.3-7 Outcome “e” Metrics with Evaluations

| Outcome e: an understanding of professional and ethical responsibility | | | |
|---|--|-----|---------------------------------|
| Metrics Associated with Outcome e: | Where Measured | Met | Comments |
| 1. 25% of graduating seniors, will sit for the AC exam. | AC Examination | Yes | 67% |
| 2. All students will develop and present a case that focuses on professional and ethical responsibility. | Course Binders | Yes | Course requirement for CNST 480 |
| 3. At least 25% of all construction management classes will address, and students will demonstrate an understanding of professional and ethical responsibility. | Course Binders Course Student Surveys | Yes | |

Table 4.3-8 Outcome “f” Metrics with Evaluations

Outcome f:

Table 4.3-9 Outcome “g” Metrics with Evaluations

| Outcome g: the broad education necessary to understand the impact of construction in a global, economic, environmental, and societal context | | | |
|--|----------------|-----|----------|
| Metrics Associated with Outcome g | Where Measured | Met | Comments |
| 1. 100% of construction students fulfill the Multidisciplinary Core Education component as well as the Core Concentration component of study to include the Core Senior Seminar. | Transcripts | Yes | |

2. At least 25% of construction courses address this outcome.

Table 4.3-11 Outcome “i” Metrics with Evaluations

| <p align="center">Outcome i: a knowledge of contemporary issues related to the construction industry</p> | | | |
|---|---|------------|------------------------|
| Metrics Associated with Outcome i | Where Measured | Met | Comments |
| 1. All (100%) of construction students will be exposed to contemporary issues through the Multidisciplinary Core Education component as well as the Senior multidisciplinary Core course | Course Binders | Yes | |
| 2. At least 25% of construction courses will address this outcome. | Course Binders Faculty Course Assessment Report. | Yes | |
| 3. At least 85% of graduating seniors will rate their proficiency in knowledge of contemporary issues at a score of 1 or 2 on a five point scale where 1 means proficiency developed and 5 means proficiency not developed. | Construction Student Exit Survey | Yes | Mean 4.03 and median 4 |
| 4. All (100%) of construction students will be exposed to contemporary issues through the Senior Seminar class. | Course Binders | Yes | |
| 5. All (100%) of construction students will participate in the Feinstein Service Learning Requirement of at least 5 hours in the surrounding community. | Transcripts | Yes | |



student chapter grew to approximately 65 members with members from both CM and Architecture. Next year the chapter will seek to expand membership to students from engineering, business and the arts and sciences. The USGBC chapter ran a LEED GA workshop and awarded over 30 certificates. The USGBC chapter received over \$3,000 in University funding to support organization activities next year.

Capstone Project

Capstone project results this year were again excellent. Professor Gould, with the support of our advisory board, assembled an excellent panel to review our senior capstone projects. For the first time, the majority of the review panel was made up of Alumni who had completed a similar Capstone Project when they were at RWU.

Two changes that were implemented based on previous faculty assessment discussions were to excuse all seniors who were participating as members of national student completion teams and to add 5% to the course grade of any student who takes and passes the AC Level 1 exam. Unfortunately, a national student competition was not held, so all students participated in the capstone project. Like last year, senior exit surveys were held in conjunction with the capstone project presentations. Both the capstone review panel and the senior exit survey panels were chaired by advisory board members. Capstone project juror comments are at Tab F. The Senior Exit survey report can be found at Tab E.

All projects this year were sponsored by Shawmut Design and Construction. The projects were provided to the students with varied level of completeness and information. This focus on real projects had some good and bad results. Since estimating and scheduling information was provided the students were able to work a project of a larger scale than if they had to develop the estimate from scratch. This provided benefits in the areas of site logistics, home and field organization, crashing and cash management. The downside however, was that the students often did not know where the costs came from and had difficulty matching costs to schedule activity. This created across the board frustration. Since students didn't "own" the estimate they had a tendency to not dig as deep as they needed.

Listening to student and juror comments our plan for next year will include the following. Projects will again be corporate sponsored, but will be more varied to include a heavy highway, industrial and possibly a residential option in addition to the current commercial building and institutional option. Other corporate sponsors will be needed. The projects will be run in a competition format similar to what occurs in the fall ASC Region 1 competition. This will create more interest for the students. Graded gates (interim submittals) which worked well this year will be continued, but will need to involve the corporate sponsors. This strategy will need to be organized during the fall semester with student teams formed prior to the winter recess.

Associate Constructor Exam and Review Course

The program faculty felt that our previously implemented changes worked well. Exam participation was promoted by the faculty. Students who did sit for and passed the exam received a 5% bonus in CNST 480 and their exam fee was reimbursed.

Class results were mediocre at best – 66.7% of eligible seniors took the exam and of those that took it, 58% passed. (The National pass rate was 62%) The full AC Exam report is included at Tab G.

Some faculty members see the poor results as one of apathy on the part of the students as well as our supporting employers. Others, however, see the exam as an accurate reflection of the base knowledge our graduates should have mastered at the time of graduation. It is our intention to continue to push the exam, provide a 5% bonus in CNST 480 for those that pass, and reimbursements for the exam cost and, new next year, penalize those who do not pass the exam 5% in CNST 480.

Other Topics

Efforts continue to be made to strengthen the CM Advisory Board. The academic subcommittee actively supported the senior exit interview and Capstone Project activities. The subcommittee also held a mentoring workshop and oversaw competition team activities. The development committee established an endowed scholarship. The newly formed alumni subcommittee has begun to reach out to all graduates and held a mixer in Boston to connect to alumni that work in that area.

Thanks to a gift from Shawmut Design and Construction a dedicated Construction Management laboratory is near completion and will be fully utilized next fall. This space will be utilized for courses in estimating, scheduling, project control, project management and capstone. The space would also support club and competition activities and serve as the center for the Construction Management program.

Enrollment looks good for the start of the CM Master's next fall.

AY 2009-2010 was our documentation year in preparation for our spring 2011 ACCE visit. Our self-study will be written during the summer 2010 and submitted to ACCE by December 2010.

1. Appendix A: Revised Program Outcomes and Metrics

The following pages reflect the adjusted outcomes that will be used to assess the CM program starting in Academic Year 2010-2011. Indicated on each page is a brief note of the changes made.

| Outcome a: an ability to apply knowledge of mathematics and science to typical Construction Management tasks | | | |
|---|--|-----|----------|
| Metrics Associated with Outcome a: | Where Measured | Met | Comments |
| 1. CM student pass rate of the AC exam meets or exceeds the national average | AC Exam | | |
| 2. For each required construction course with a prerequisite in mathematics, science or engineering, at least 75% of the students who have C or better in the prerequisite course pass the course on the first attempt. | Transcript Review | | |
| 3. All graduating seniors report that they have achieved proficiency in the ability to apply knowledge of mathematics and science to solve construction problems. Proficiency is defined as a mean and median score of 4 or above on a 5 point scale where 5 means proficiency achieved and 1 means proficiency not achieved. | Course Student Survey Student Exit Survey | | |

| Outcome b: effective research and problem solving skills applied to typical Construction Management tasks | | | |
|---|----------------------------------|-----|----------|
| Metrics Associated with Outcome b: | Where Measured | Met | Comments |
| 1. At least 50% of all CM courses will require research and problem solving skills. | Course Binders | | |
| 2. At least 10% of all Construction Management seniors will participate in a competition where their ability to research and solve problems and will be externally judged and assessed. | Student Competitions | | |
| 3. Graduating seniors report that they have achieved proficiency in the ability to solve construction problems. Proficiency is defined as a mean and median score of 4 or above on a 5 point scale where 5 means proficiency achieved and 1 means proficiency not achieved. | Student Exit Survey | | |
| 4. Alumni rate their preparation for the workplace proficient in the area of research and problem solving. Proficiency is defined as a mean and median score of 4 or above on a 5 point scale where 5 means proficiency achieved and 1 means proficiency not achieved. | Alumni Survey Employer Survey | | |

**Outcome c:
an ability to plan, to organize and to control a construction project**

| Metrics Associated with Outcome c: | Where Measured | Met | Comments |
|---|-----------------------|------------|-----------------|
| 1. 100% of Construction students participate in a Capstone Project Class that involves a semester long industry sponsored project that demonstrates their ability to successfully plan, organize and control a project. | Capstone Project | | |

Outcome d:

**Outcome e:
an understanding of professional and ethical responsibility**

| Metrics Associated with Outcome e: | Where Measured | Met | Comments |
|---|--|------------|-----------------|
| 1. 75% of graduating seniors will sit for the AC exam. | AC Examination | | |
| 2. All students will develop and present a case that focuses on professional and ethical responsibility. | Course Binders | | |
| 3. At least 25% of all construction management classes will address, and students will demonstrate an understanding of professional and ethical responsibility. | Course Binders Course Student Surveys | | |

| Outcome f: an ability to communicate effectively | | | |
|---|--|------------|-----------------|
| Metrics Associated with Outcome f | Where Measured | Met | Comments |
| 1. At least 85% of all mentors and potential employers agree that graduating seniors possess the ability to communicate effectively. | Capstone Jury Graduate employer survey | | |
| 2. 100% of seniors will have the opportunity in construction classes to make an oral presentation at least twice a semester in their senior year. | Course Binders Course Assessment Report | | |
| 3. 100% of all freshmen will have the opportunity to make an oral presentation in a construction class at least 2 times per year. | Course Binders Course Assessment Report | | |
| 4. 100% of graduates will produce an acceptable senior capstone oral report as evaluated by external and internal review. | Transcript Review | | |
| 5. At least 90% of alumni report that their RWU education has prepared them proficiently in communication skills for the workplace. Proficiency is defined as a mean and median score of 4 or above on a 5 point scale where 5 means proficiency achieved and 1 means proficiency not achieved. | Alumni Survey | | |

| Outcome g: the broad education necessary to understand the impact of construction in a global, economic, environmental, and societal context | | | |
|---|--|-----|----------|
| | | | |
| Metrics Associated with Outcome g | Where Measured | Met | Comments |
| 1. 100% of construction students fulfill the Multidisciplinary Core Education component as well as the Core Concentration component of study to include the Core Senior Seminar. | Transcripts | | |
| 2. At least 25% of construction courses address this outcome. | Course Assessment Report Course Binders | | |
| 3. At least 1 guest speaker per semester will address the above outcome. | CM Club Report | | |
| 4. Graduating seniors rate themselves proficient with the broad education necessary to understand the impact of construction in a global, economic, environmental and societal context. Proficiency is defined as a mean and median score of 4 or above on a 5 point scale where 5 means proficiency achieved and 1 means proficiency not achieved. | Senior Exit Survey | | |

**Outcome h:
a recognition of the need for, and an ability to engage in lifelong learning**

| Metrics Associated with Outcome h | Where Measured | Met | Comments |
|--|-----------------------|------------|-----------------|
| 1. 75% of graduating seniors will sit for the AC exam. | AC Exam Results | | |
| 2. At least 50% of CM students will be active members in the CM club. | CM Club Report | | |
| 3. Alumni indicate participation in professional training, professional societies or a graduate school since graduating from RWU. Adequate participation is defined as a mean and median score of 4 or above on a 5 point scale where 5 means participation achieved and 1 means participation not achieved. | Alumni Survey | | |

**Outcome i:
a knowledge of contemporary issues related to the construction industry**

| Metrics Associated with Outcome i | Where Measured | Met | Comments |
|--|-----------------------|------------|-----------------|
|--|-----------------------|------------|-----------------|