

1. The Construction Management faculty met for mid-year review of the CM degree program on June 8, 2017.
2. Faculty present:
 - a. Dr. Albert Bleakley, Program Chair Construction Management
 - b. Dr. Troy Nguyen, Associate Professor, Construction Management
 - c. Dr. Junyong Ahn, Assistant Professor, Construction Management
3. Old business:
 - a. The reduction of the Technical Elective requirement from 9 credits to 3 credits submitted in 2016 is now in effect as in the 2017/2018 catalog. The Registrar's office made a bulk update to student's records to use the 2017/2018 requirements in determining graduation requirements.
 - b. CON 4090, Special Topics in Construction Management, was also added to the 2017/2018 catalog, to allow flexibility to offer special interest topics.
 - c. CON 2000, Statics and Mechanics of Materials for Construction, is now shown in the university catalog in the fall of junior year in the 2017/2018 catalog.
4. New business
 - a. In the Fall 2016 term the faculty began collecting data for evaluation of the 20 ACCE student learning outcomes in accordance with the Quality Improvement Plan. All outcomes will be evaluated with one direct and one indirect measure.
 - b. The indirect measure is a survey completed by students at the end of the senior design (capstone) course. Indirect assessments collected in the Spring 2017 term were discussed in the Annual Program Review Meeting in June 2017. The next indirect assessments will be collected in May 2018 so they are not discussed in this Program Review. For additional insight, the CM program published an on-line poll for alumni to rate themselves on the 20 ACCE SLO's and to solicit suggestions for additions/improvements to the curriculum. A link to this survey was sent by email to all CM graduates. The survey response rate to date is approximately 16%. A follow-up email will be sent during the Spring 2018 term. The survey will remain open until May 2018 when the new graduating senior survey is collected. The survey results will be discussed along with the senior survey in the end of year Program Review in June 2018.

- c. Direct outcomes measures: A uniform target was adopted for the first round of metric collection as the program implemented outcomes based assessment. Generally students met the initial target of 70% of students achieving 70% on the metrics. The metrics were found to be adequate for assessing the outcomes however several modifications were proposed for future assessment rounds:
- i. SLO 1 – Create Written Communications. The metric for this outcome is the CON 4092 Senior Project written submission. Each student prepares a part of the team project report. Each student is assessed on their section. Metric data was collected in the Spring 2017 term. The target was met.
 - ii. SLO 2 – Create Oral Presentations. The metric for this outcome is the CON 4092 Senior Project presentation at the annual Harris-Grumman project showcase. Each student prepares a project display and presents part of a team presentation to a panel of industry judges, faculty, and the public. Each student is assessed on their presentation. Metric data was collected in the Spring 2017 term. The target was met. For the next round of assessment a more detailed rubric will be used specific to the oral part of the presentation and a copy of the presentation will be included with the assessment.
 - iii. SLO 3 – Create Safety Plan. This requirement was initially part of a group term project in CON 4000, Construction Controls, but was changed to be assessed as an individual project in CON 4005, Construction Safety. Metric data was collected for Fall 2016 and Fall 2017. The target was met in both terms.
 - iv. SLO 4 – Create Cost Estimates. Groups of students receive a complete set of plans for a light commercial building and create a complete cost estimate. Metric data was collected on the group term project for Fall 2016. All groups met the target. The metric was changed for Fall 2017 to assign each individual specific CSI sections so each team member receives an individual grade. The target was met.
 - v. SLO 5 – Create Schedules. The metric for this outcome is an individual term project to create a construction schedule for a \$500,000 project which

includes demolition, renovation, and new construction. Students receive a complete set of plans and a total contract cost. They create a cost-loaded master CPM and a variety of reports. Metric data was collected in the Fall 2016 and Fall 2017 terms. The overall target was met however students had problems with CPM and bar chart formats. These areas will be emphasized during the in-class computer lab sessions.

- vi. SLO 6 – Analyze Decisions Based on Ethics. Students are assigned individual ethics case studies in CVE 4074, Leading Construction. Students submit a written analysis based on CMAA code of ethics. The metric was assessed in Spring 2017. The target was met.
- vii. SLO 7 – Analyze Construction Documents. This outcome is assessed with a series of exam questions which require students to read and analyse construction drawings. The metric was assessed in the Fall 2017 term. The target was met. The metric currently only assesses analysing plans. Instructor reviewing possible modification to add specification analysis.
- viii. SLO 8 – Analyze Methods, Materials, Equipment. Students analyse alternate construction equipment combinations for an earthwork project to determine the best combination for production rate and cost. The metric will be assessed in the Spring 2018 term
- ix. SLO 9 – Apply CM Skills on a Multi-Disciplinary Team. The metric for this outcome is the CON 4092 Senior Project. Teams of 4 – 6 students create a written project proposal including scope, drawings, budget, schedule, quality plan and safety plan. Projects also include physical and computer models which are presented at the Harris-Grumman showcase. Each student is responsible for a specific part of the written report and oral presentation. Each student is assessed on their section. Additionally students complete peer evaluations to rate the contribution of each team member. Metric data was collected in the Spring 2017 term. The target was met.
- x. SLO 10 – Electronic technology. Metric data was collected based on the Construction Controls individual term project with includes scheduling,

changes, and progress payments. The metric was assessed in the Fall 2016 term. The target was met..

- xi. SLO 11 – Apply Basic Surveying. This outcome is assessed with a series of exam questions in the CVE Construction Measurements course. Metric data was collected in the Spring 2017 term. The Target was met. The program chair is coordinating with the Civil Engineering faculty member who teaches the course to determine whether it is feasible to implement a hands-on assessment as part of a laboratory develop a direct assessment metric to better assess student performance.
- xii. SLO 12 – Understand Project Delivery/Roles. This outcome is assessed with a series of exam questions in the CON 2001 Construction Methods course. Metric data was collected in the Fall 2017 term. The target was met.
- xiii. SLO 13 – Understand Construction Risk Management. This outcome is assessed in a graded student project in CON 4092, Senior Design. Metric data is scheduled to be collected for the first time in the Spring 2018 term.
- xiv. SLO 14 – Understand Construction Accounting and Cost Control. This outcome is assessed in a graded student project in CON 4092, Senior Design. Metric data is scheduled to be collected for the first time in the Spring 2018 term.
- xv. SLO 15 – Understand Construction Quality Assurance and Control. This outcome is assessed with a series of exam questions in the CON 2001 Construction Methods course. Metric data was collected in the Fall 2017 term. The target was not met. Less than 70% of the students could differentiate between Quality Assurance and Quality Control. This will be emphasized in the lectures and homework assignments.
- xvi. SLO 16 – Understand Construction Project Control. The metric for this outcome is an individual term project to create a construction schedule for a \$500,000 project which includes demolition, renovation, and new construction. Students receive a complete set of plans and a total contract cost. They create a cost-loaded master CPM and PM, Owner,

Subcontractor, and Superintendent 3-week look-ahead reports. Schedules also include QC inspections. Students also analyse impacts of unknown site conditions, weather impacts, etc. on the schedule and budget and develop solutions to regain schedule/budget. Metric data was collected in the Fall 2016 and Fall 2017 terms. The target was met.

- xvii. SLO 17 – Legal Implications. This outcome is assessed with a series of exam questions in the CON 2001 Construction Methods course. Metric data was collected in the Fall 2017 term. The target was not met. Less than 70% of the students correctly matched common, contract, and regulatory law to a series of scenarios. This will be emphasized during future lectures and homework assignments.
 - xviii. SLO 18 – Sustainable construction. This outcome will be assessed in a series of exam questions in CON 3002, Building Mechanical Systems. Metric data is scheduled to be collected for the first time in the Spring 2018 term.
 - xix. SLO 19 – Structural behaviour. This outcome is assessed in the CON 3001, Building Structures, term design project. The project was changed from a group to an individual project to give each student broader exposure to the different areas of structural behavior and to assess each student. Metric data was collected in the Fall 2017 term. The target was met..
 - xx. SLO 20 – Mechanical and electrical systems. This outcome is assessed in two different courses, CON 3002, Building Mechanical Systems, and CON 4001, Building Electrical Systems. In both courses the assessment consists of a series of exam questions. Electrical assessment data was collected in the Fall 2016 term and Mechanical data in the Spring 2017 term. The target was met.
- d. No changes were necessary in course descriptions or credit hours.