STUDENT LEARNING OUTCOMES – ASSESSMENT METHODS REPORT

CONSTRUCTION MANAGEMENT DEPARTMENT

BOWLING GREEN STATE UNIVERSITY: SPRING 2019

Introduction:
The purpose of this report is to summarize the direct assessment tools associated with each of the twenty Student Learning Outcomes (SLOs).

SLO 1 – Create written communications appropriate to the construction discipline.

Course Direct Assessment: CONS 4390 – Estimating and Cost Control
CONS 4110 - Safety/Health Management
SLO Assessment Cycle: Year 2
Direct Assessment Tool: CONS 4390 – Scope of Work Letter Assignment
CONS 4110 – Health and Safety Plan Assignment
Assessment Goal: 70% of students obtain 70% or higher

Summary of the Direct Assessment Tool(s):

CONS 4390 – The assessment tool is the Scope of Work Letter assignment in CONS 4390. The students are required to write a proposal letter to the owner. The assignment is based upon the set of plans used for the final project. The letter consists of an opening paragraph and company qualifications. The letter then includes a detailed scope of work written using the CSI division format. The letter continues with the price, and a closing paragraph.

CONS 4110 - The assessment tool is the Health and Safety Plan assignment in CONS 4110. The students are given a project scenario. They are required to create and submit a written job specific construction safety and health plan. The safety plan addresses work practices and procedures designed to protect employees and the general public from hazards associated with the work described in the project scenario.

SLO 2 – Create oral presentations appropriate to the construction discipline.

Course Direct Assessment: CONS 3710 - BIM for Construction
SLO Assessment Cycle: Year 2
Direct Assessment Tool: Project Presentation
Assessment Goal: 70% of students obtain 70% or higher

Summary of the Direct Assessment Tool:

The assessment tool is the presentation of the BIM model project in CON 3710. The students are required to prepare and present individual presentations based on their final BIM model. This presentation includes construction documents and software animations based upon their BIM model. The student also creates a PowerPoint presentation to use in their overall presentation.

SLO 3 – Create a construction project safety plan

Course Direct Assessment: CONS 4110 – Safety/Health Management
SLO Assessment Cycle: Year 1
Direct Assessment Tool: Health and Safety Plan Assignment
Assessment Goal: 70% of students obtain 70% or higher

Summary of the Direct Assessment Tool:

The assessment tool is the Health and Safety Plan assignment in CONS 4110. The students are given a project scenario. They are required to create and submit a written job specific construction safety and health plan. The safety plan addresses work practices and procedures designed to protect employees and the general public from hazards associated with the work described in the project scenario.

SLO 4 – Create Construction Cost Estimates

Course Direct Assessment: CONS 4390 – Estimating and Cost Control
SLO Assessment Cycle: Year 1
Direct Assessment Tool: Final Project
Assessment Goal: 70% of students obtain 70% or higher

Summary of the Direct Assessment Tool:

The assessment tool is the final project in CONS 4390. The students receive an Excel template for creating the summary pages, as well as excel worksheets for the activities. The students are responsible for quantifying the "self-performed" work of the project. This includes site demolition, site work, site utilities, concrete, carpentry, and metal roofing and siding. The students are given a list of resources, which include labor, equipment and material pricing. From what they have learned in class, the student must create the crew composition and determine the crew efficiency for the self-performed activities. The students are given subcontractor pricing to complete the estimate.

SLO 5 – Create construction project schedules.

Course Direct Assessment: CONS 4420 - Construction Scheduling
SLO Assessment Cycle: Year 3
Direct Assessment Tool: CONS 4420 – OTC Baseline Schedule Assignment
Assessment Goal: 70% of students obtain 70% or higher

Summary of the Direct Assessment Tool:

The assessment tool is the OTC Baseline Schedule Assignment in CONS 4420. In this assignment, the students create seven individual components. These components include, Detailed Project Schedule, Schedule Log, Critical Path Schedule, 6 Week Look Ahead, Cash Flow Curve, Monthly Cash Flow Trending Report, and Summary Schedule.

SLO 6 – Analyze Professional Decisions Based on Ethical Principles

Course Direct Assessment: CONS 4400 – Construction Contracting
AIC Exam Results
SLO Assessment Cycle: Year 1
Direct Assessment Tool: CONS 4400 - Legal Ethics Analysis Project
AIC Exam Results
Assessment Goal: 70% of students obtain 70% or higher, or as noted

Summary of the Direct Assessment Tool:

CONS 4400 - The assessment tool is the Legal and Ethics Analysis project in CONS 4400. The students are given a project scenario. The project is designed to provide experience in legal and ethical dilemmas in construction. The students assess the project facts, review three legal cases and write an internal memo based upon their analysis of the provided information.

AIC Exam - The evaluation index for the AIC exam is that 70% of the student scores fall within 5% of the national average for each specific SLO.

SLO 7 – Analyze construction documents for planning and management of construction processes.

Course Direct Assessment: CONS 2390 - Construction Document Reading
AIC Exam Results
SLO Assessment Cycle: Year 2
Direct Assessment Tool: CONS 2390 – Final Exam
AIC Exam Results
Assessment Goal: 70% of students obtain 70% or higher, or as noted

Summary of the Direct Assessment Tool:

CONS 2390 – The assessment tool is the Final Exam in CONS 2390. The students are given a set of plans and specifications. They must review the plans and specifications to find the information necessary to answer the exam questions.

AIC Exam - The evaluation index for the AIC exam is that 70% of the student scores fall within 5% of the national average for each specific SLO.

SLO 8 – Analyze methods, materials, and equipment used to construct projects.

Course Direct Assessment: CONS 4350 - Construction Methods and Practices
AIC Exam Results
SLO Assessment Cycle: Year 3
Direct Assessment Tool: CONS 4350 – Multiple Assignments for a Project
AIC Exam Results
Assessment Goal: 70% of students obtain 70% or higher, or as noted

Summary of the Direct Assessment Tool:

CONS 4350 – The assessment tool is multiple assignments in CONS 4350 pertaining to a single project that is comprised of a combined Plant, Warehouse and Office Building. The assignments include the development of a jobsite layout and the selection of construction equipment utilized. Each assignment is assessed based on methodology, logic and technical accuracy. The assignments are weighted equally in the SLO evaluation.

AIC Exam - The evaluation index for the AIC exam is that 70% of the student scores fall within 5% of the national average for each specific SLO.

SLO 9 – Apply construction management skills as a member of a multidisciplinary team.

Course Direct Assessment: CONS 4700 - Construction Capstone
SLO Assessment Cycle: Year 2
Direct Assessment Tool: Capstone Group Project
Assessment Goal: 70% of students obtain 70% or higher

Summary of the Direct Assessment Tool:

The assessment tool is a group project in CONS 4700. Students are formed into groups based on their prior experience and interests to collective develop a project work plan, construction schedule, cost estimates, risk analysis for a real-world project-based assignment. Each group is assigned a specific project which has recently been completed. Group submission includes a hard copy submission and an oral presentation. The assignment is assessed based on its level of detail, technical accuracy and quality of presentation.

SLO 10 – Apply electronic-based technology to manage the construction process.

Course Direct Assessment: CONS 3200 – Computer Applications in Construction
SLO Assessment Cycle: Year 3
Direct Assessment Tool: CONS 3200 – HCSS HeavyBid Assignment
Assessment Goal: 70% of students obtain 70% or higher

Summary of the Direct Assessment Tool:

The assessment tool is an assignment using HCSS HeavyBid in CONS 3200. The assignment requires the student to perform a cost estimation utilizing HCSS HeavyBid.

SLO 11 – Apply basic surveying techniques for construction layout and control

Course Direct Assessment: CONS 3180 – Construction Surveying
SLO Assessment Cycle: Year 1
Direct Assessment Tool: Skills Assessment assignment and Final Exam, which are weighted equally
Assessment Goal: 70% of students obtain 70% or higher

Summary of the Direct Assessment Tool:

The assessment tool is the Skills Assessment assignment and the Final Exam in CONS 3180. In the Skills Assessment assignment, the students must demonstrate their ability to correctly read and record measurements from the engineer's and architect's tapes. The student then sets up level to obtain a level rod reading. The student will then set up the transit over a predetermined point and render it to an operational condition. The student will then turn the horizontal angle, stating the readout and recoding the angle in acceptable industry format on the assessment sheet. In the Final Exam, the students must demonstrate their ability to perform all calculations necessary to solve the surveying problems. The combination of these assignments demonstrates the ability to apply basic surveying techniques for construction layout and control.

SLO 12 – Understand different methods of project delivery and the roles and responsibilities of all constituencies involved in the design and construction process.

Course Direct Assessment: CONS 4400 - Construction Contracting
AIC Exam Results
SLO Assessment Cycle: Year 2
Direct Assessment Tool: CONS 4400 – Exam #2
AIC Exam Results
Assessment Goal: 70% of students obtain 70% or higher, or as noted

Summary of the Direct Assessment Tool:

CONS 4400 – Construction Contracting Exam #2 covers the topic of Project Delivery Systems and Contracts.

AIC Exam - The evaluation index for the AIC exam is that 70% of the student scores fall within 5% of the national average for each specific SLO.

SLO 13 – Understand Construction Risk Management.

Course Direct Assessment: CONS 4350 – Construction Methods and Practices
CONS 4400 – Construction Contracting
AIC Exam Result
SLO Assessment Cycle: Year 1
Direct Assessment Tools: CONS 4350 – Construction Risk Register
CONS 4400 - Exam #4
AIC Exam Results
Assessment Goal: 70% of students obtain 70% or higher, or as noted.

Summary of the Direct Assessment Tools:

CONS 4350 - The assessment tool is the Construction Risk Register assignment. Students are asked to develop a qualitative and quantitative construction risk register for a Combined Plant, Warehouse and Office building complex. The assignment is assessed based on the demonstrated knowledge of likely risks and ability to described coherent mitigation measures.

CONS 4400 - Construction Contracting Exam #4 covers the topics of insurance and bonds.

AIC Exam - The evaluation index for the AIC exam is that 70% of the student scores fall within 5% of the national average for each specific SLO.

SLO 14 – Understand construction accounting and cost control.

Course Direct Assessment: CONS 4350 - Construction Methods and Practices
AIC Exam Results
SLO Assessment Cycle: Year 2
Direct Assessment Tool: CONS 4350 – Schedule of Values and Budget Estimate
AIC Exam Results
Assessment Goal: 70% of students obtain 70% or higher, or as noted

Summary of the Direct Assessment Tool:

CONS 4350 – The assessment tool is the Schedule of Values and Budget Estimate assignment. The assignment is broken down into three elements, developing a construction schedule, developing a schedule of values to reflect the project's cash flow requirements, and development of a budget estimate capable of tracking variable project costs. This assignment is assessed based on the methodology, logic and its technical accuracy.

AIC Exam - The evaluation index for the AIC exam is that 70% of the student scores fall within 5% of the national average for each specific SLO.

SLO 15 – Understand construction quality assurance and control.

Course Direct Assessment: CONS 3350 - Construction Materials and Testing
AIC Exam Results
SLO Assessment Cycle: Year 3
Direct Assessment Tool: CONS 3350 – Quiz #1 - Midterm
AIC Exam Results
Assessment Goal: 70% of students obtain 70% or higher, or as noted

Summary of the Direct Assessment Tool:

CONS 3350 – The assessment tool is the midterm quiz in CONS 3350. This quiz includes questions pertaining to the quality assurance for steel/steel connections, soil conditions and soil classifications. The quiz also includes questions pertaining to the appropriate means and methods relating to both steel and soil conditions.

AIC Exam - The evaluation index for the AIC exam is that 70% of the student scores fall within 5% of the national average for each specific SLO.

SLO 16 – Understand construction project control processes

Course Direct Assessment: CONS 4420 - Construction Scheduling
AIC Exam Results
SLO Assessment Cycle: Year 3
Direct Assessment Tool: CONS 4420 – Construction Schedule Updates, Assignment 10
AIC Exam Results
Assessment Goal: 70% of students obtain 70% or higher, or as noted

Summary of the Direct Assessment Tool:

CONS 4420 – The assessment tool is a construction scheduling cost loading assignment. The student generates a baseline schedule using the activities provided. The student then takes costs provided for each activity and load the costs into the schedule. The student can then develop a cost curve which indicates forecasted project revenue per month. In the final part of this assignment, the student generates an updated schedule based upon a defined calendar day.

AIC Exam - The evaluation index for the AIC exam is that 70% of the student scores fall within 5% of the national average for each specific SLO.

SLO 17 – Understand the legal implications of contract, common, and regulatory law to manage a construction project.

Course Direct Assessment: CONS 4400 - Construction Contracting
AIC Exam Results
SLO Assessment Cycle: Year 1
Direct Assessment Tool: CONS 4400 – Exam #5 and Exam #6
AIC Exam Results
Assessment Goal: 70% of students obtain 70% or higher, or as noted

Summary of the Direct Assessment Tool:

CONS 4400 - The assessment tool is the combination of Exam #5 and Exam #6. Exam #5 covers the topic of Construction Contracts Part 1. Exam #6 covers the topic of Construction Contracts Part 2.

AIC Exam - The evaluation index for the AIC exam is that 70% of the student scores fall within 5% of the national average for each specific SLO.

SLO 18 – Understand the basic principles of sustainable construction.

Course Direct Assessment: CONS 2350 - Introduction to Construction
AIC Exam Results
SLO Assessment Cycle: Year 1
Direct Assessment Tool: CONS 2350 - Test 2 – Extracted Questions 1 - 4
AIC Exam Results
Assessment Goal: 70% of students obtain 70% or higher, or as noted

Summary of the Direct Assessment Tool:

CONS 2350 - The assessment tool is the first four questions of Test #2 test the students' knowledge of sustainability as presented in the course text and course lectures.

AIC Exam - The evaluation index for the AIC exam is that 70% of the student scores fall within 5% of the national average for each specific SLO.

SLO 19 – Understand the basic principles of structural behavior.

Course Direct Assessment: CONS 3360 - Structural Design
AIC Exam Results
SLO Assessment Cycle: Year 3
Direct Assessment Tool: CONS 3360 – Final Exam
AIC Exam Results
Assessment Goal: 70% of students obtain 70% or higher, or as noted

Summary of the Direct Assessment Tool:

CONS 3360 – The assessment tool is the Final Exam for CONS 3360. The students are given a comprehensive examination at the end of the semester which includes the following components: statics, vectors, beam design, truss design, axial loading and design of timber members.

AIC Exam - The evaluation index for the AIC exam is that 70% of the student scores fall within 5% of the national average for each specific SLO.

SLO 20 – Understand the basic principles of mechanical, electrical and piping systems.

Course Direct Assessment: CONS 3370 - HVAC Systems
AIC Exam Results
SLO Assessment Cycle: Year 2
Direct Assessment Tool: CONS 3370 – Extracted Questions from Exams
AIC Exam Results
Assessment Goal: 70% of students obtain 70% or higher, or as noted

Summary of the Direct Assessment Tool:

CONS 3370 – The assessment tool is extracted questions from four exams offered during the course of the class. There are four questions extracted from each of the following exams; Test 1 – Plumbing Test, Test 2 – HVAC Test, Test 3 – Electrical Test and Test 4 – Fire, Data, Fiber Optics and Security Test. The questions are weighted equally in the SLO evaluation.

AIC Exam - The evaluation index for the AIC exam is that 70% of the student scores fall within 5% of the national average for each specific SLO.

NOTE: In addition to the Direct Assessments listed in this report, all SLOs are also assessed either directly or indirectly with the AIC Exam results. Additionally, all SLOs are also assessed indirectly with the Senior Exit Survey Results.