

**STUDENT LEARNING OUTCOMES –  
ASSESSMENT METHODS REPORT**  
CONSTRUCTION MANAGEMENT DEPARTMENT

BOWLING GREEN STATE UNIVERSITY    REVISED: MAY 2020

**Revised: Spring 2020**

**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. (Updated SPR 2020)**

Course Direct Assessment: CONS 3590 – Estimating and Cost Control

SLO Assessment Cycle: Year 2

Direct Assessment Tool: CONS 3590 – Scope of Work Letter Assignment

Assessment Goal: 70% of students obtain 70% or higher

Summary of the Direct Assessment Tool(s):

CONS 3590 – The assessment tool is the Scope of Work Letter assignment in CONS 3590. 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.

**SLO 2 – Create oral presentations appropriate to the construction discipline. (Updated SPR 2020)**

Course Direct Assessment: CONS 4700 – Construction Capstone

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 final project presentation in CONS 4700. The panel defense is an oral presentation of a small group project-based assignment (PBA) meant to simulate real world conditions. Students form their own groups and select their own project from an electronic plan room (Ohio Builders Exchange). While this is a group project, students are graded individually based upon their contribution to the presentation.

**SLO 3 – Create a construction project safety plan. (Updated SPR 2020)**

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. (Updated SPR 2020)**

Course Direct Assessment: CONS 3590 – 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 3590. 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. (Updated SPR 2020)**

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. (Updated SPR 2020)**

Course Direct Assessment: CONS 4400 – Construction Contracting

SLO Assessment Cycle: Year 1

Direct Assessment Tool: CONS 4400 – Case Study

Assessment Goal: 70% of students obtain 70% or higher, or as noted

Summary of the Direct Assessment Tool:

CONS 4400 – A presentation that was a dialog/conversation between two parties over an ethical topic from the AGC Case Study "Allied Constructors: Ethics in Construction".

**SLO 7 – Analyze construction documents for planning and management of construction processes. (Updated SPR 2020)**

Course Direct Assessment: CONS 2590 - Construction Document Reading

SLO Assessment Cycle: Year 2

Direct Assessment Tool: CONS 2590 – Final Exam

Assessment Goal: 70% of students obtain 70% or higher, or as noted

Summary of the Direct Assessment Tool:

CONS 2590 – The assessment tool is the Final Exam in CONS 2590. 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.

**SLO 8 – Analyze methods, materials, and equipment used to construct projects. (Updated SPR 2020)**

Course Direct Assessment: CONS 4350 - Construction Methods and Practices

SLO Assessment Cycle: Year 3

Direct Assessment Tool: CONS 4350 – Multiple Assignments

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 overall grade for CONS 4350. All of the quizzes and tests are relevant to this SLO, so the overall grade is the best indicator.

**SLO 9 – Apply construction management skills as a member of a multidisciplinary team.  
(Updated SPR 2020)**

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 collectively 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.  
(Updated SPR 2020)**

Course Direct Assessment: CONS 3710 – BIM for Constructors

SLO Assessment Cycle: Year 3

Direct Assessment Tool: CONS 3710 – HVAC Quantity Take-Off

Assessment Goal: 70% of students obtain 70% or higher

Summary of the Direct Assessment Tool:

The assessment tool is a NavisWorks software assignment in CONS 3710. The students perform quantity take-off using NavisWorks software for a construction project. The results are then submitted in an Excel file format.

**SLO 11 – Apply basic surveying techniques for construction layout and control.  
(Updated SPR 2020)**

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.  
(Updated SPR 2020)**

Course Direct Assessment: CONS 4400 - Construction Contracting

SLO Assessment Cycle: Year 2

Direct Assessment Tool: CONS 4400 – Exam Assessment

Assessment Goal: 70% of students obtain 70% or higher, or as noted

Summary of the Direct Assessment Tool:

CONS 4400 – The assessment tool is a standard test assessment with 2/3 of the value coming from various types of questions and 1/3 of the value coming from a written essay.

**SLO 13 – Understand Construction Risk Management. (Updated SPR 2020)**

Course Direct Assessment: CONS 4350 – Construction Methods and Practices

SLO Assessment Cycle: Year 1

Direct Assessment Tools: CONS 4350 – Construction Risk Register

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 Risk Management Quiz. This quiz is designed to measure SLO 13.

**SLO 14 – Understand construction accounting and cost control. (Updated SPR 2020)**

Course Direct Assessment: CONS 4590 - Construction Estimating Computer Applications

SLO Assessment Cycle: Year 2

Direct Assessment Tool: CONS 4590 – Cost To Date Report

Assessment Goal: 70% of students obtain 70% or higher, or as noted

Summary of the Direct Assessment Tool:

CONS 4590 – The assessment tool is an assignment in which the students are given a partial “Cost to Date” report. The students must perform calculations to determine “Units at Completion, Cost to Finish, Completion Cost and Projected Gain/Loss”, for activities found on the report. There are also a series of questions based upon the analysis of the information provided within the report.

**SLO 15 – Understand construction quality assurance and control. (Updated SPR 2020)**

Course Direct Assessment: CONS 3350 - Construction Materials and Testing

SLO Assessment Cycle: Year 3

Direct Assessment Tool: CONS 3350 – Quiz #1 - Midterm

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 final quiz in CONS 3350. This quiz includes questions pertaining to the quality assurance for soils, concrete and asphalt, as well as masonry and structural steel. The quiz also includes questions pertaining to the appropriate means and methods for earthwork and concrete placement.

**SLO 16 – Understand construction project control processes. (Updated SPR 2020)**

Course Direct Assessment: CONS 4420 - Construction Scheduling

SLO Assessment Cycle: Year 3

Direct Assessment Tool: CONS 4420 – Cost Loaded Schedule Assignment

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.

**SLO 17 – Understand the legal implications of contract, common, and regulatory law to manage a construction project. (Updated SPR 2020)**

Course Direct Assessment: CONS 4400 - Construction Contracting

SLO Assessment Cycle: Year 1

Direct Assessment Tool: CONS 4400 – Exam Assessment

Assessment Goal: 70% of students obtain 70% or higher, or as noted

Summary of the Direct Assessment Tool:

CONS 4400 - The assessment tool is a standard test assessment with 2/3 of the value coming from various types of questions and 1/3 of the value coming from a written essay.

**SLO 18 – Understand the basic principles of sustainable construction. (Updated SPR 2020)**

Course Direct Assessment: CONS 2350 - Introduction to Construction

SLO Assessment Cycle: Year 1

Direct Assessment Tool: CONS 2350 - Test 2 – Extracted Questions 1 - 10

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.

**SLO 19 – Understand the basic principles of structural behavior. (Updated SPR 2020)**

Course Direct Assessment: CONS 3360 - Structural Design

SLO Assessment Cycle: Year 3

Direct Assessment Tool: CONS 3360 – Final Exam

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.

**SLO 20 – Understand the basic principles of mechanical, electrical and piping systems.  
(Updated SPR 2020)**

Course Direct Assessment: CONS 3370 - HVAC Systems

SLO Assessment Cycle: Year 2

Direct Assessment Tool: CONS 3370 – Extracted Questions from Exams

Assessment Goal: 70% of students obtain 70% or higher, or as noted

Summary of the Direct Assessment Tool:

CONS 3370 – This course provides an overview of the technical principles, methods, materials and problems encountered in installing these systems sufficient to manage the work, as well as scheduling and estimating aspects of the MEP systems. The final exam for this course is offered as a comprehensive gauge of the students' understanding of the basic principles of mechanical, electrical and piping systems.