

BS Civil Engineering 5 Year Assessment Plan

PROGRAM LEARNING OUTCOMES (PLOS)

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics. (ILO 1)
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors. (ILO 1 & 5)
3. An ability to communicate effectively with a range of audiences. (ILO 2)
4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts. (ILO 3, 4 & 5)
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives. (ILO 3 & 4)
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions. (ILO 1 & 2)
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies. (ILO 1, 2, & 4)

Assessment Plan:

Year 1: 2023-2024	
1. Which PLO(s) to assess	4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts. (ILO 3, 4 & 5)
2. Is it aligned with ILO	Yes ILO 3, 4,5
3. Sample (courses/# of students)	a - ENGR 320 – Engineering Economics
4. SLO from the course	a - Economic analysis and decision making on engineering alternatives.
5. Assessment indicators	a- Life cycle cost analysis course project
6. Assessment instrument	Program rubric
7. Time (which semester(s))	Fall 2023
8. Responsible person(s)	Prof. Gaedicke
9. Ways of reporting (how, to who)	The results (qualitative and quantitative) will be reported by faculty to the department chair via completion of the course Faculty Self-Assessment form.
10. Ways of closing the loop	Interaction between chair, faculty and industrial advisory board

Year 2: 2024-2025	
1. Which PLO(s) to assess	6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions. (ILO 1 & 2)
2. Is it aligned with ILO	Yes ILO 1, 2
3. Sample (courses/# of students)	a- CIVE 330 – Strength of Materials
4. SLO from the course	a- Ability to analyze materials testing data and calculate the mechanical properties of construction materials. b- Assess the mechanical properties of materials based on laboratory data.
5. Assessment indicators	<i>Materials testing lab reports</i>
6. Assessment instrument	Program rubric
7. Time (which semester(s))	Fall 2024
8. Responsible person(s)	Prof. Nasimi
9. Ways of reporting (how, to who)	The results (qualitative and quantitative) will be reported by faculty to the department chair via completion of the course Faculty Self-Assessment form.
10. Ways of closing the loop	Interaction between chair, faculty and industrial advisory board

Year 3: 2025-2026	
1. Which PLO(s) to assess	7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies. (ILO 1, 2, & 4)
2. Is aligned with an ILO	Yes, ILO 1, 2, 4
3. Sample (courses/# of students)	a- CIVE 421 – Structural Engineering Design
4. SLO from the course	a- Analyze an indeterminate structure and calculate all the structure's reactions
5. Assessment indicators	Course project;
6. Assessment instrument	Program rubric
7. Time (which semester(s))	a-Spring 2026
8. Responsible person(s)	a-TBD

9. <i>Ways of reporting (how, to who)</i>	The results (quantitative) will be reported by faculty to the department chair via completion of the course Faculty Self-Assessment form.
10. <i>Ways of closing the loop</i>	Interaction between chair, faculty and industrial advisory board

Year 3: 2025-2026

1. <i>Which PLO(s) to assess</i>	2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors. (ILO 1 & 5)
2. <i>Is aligned with an ILO</i>	Yes, ILO 1, 5
3. <i>Sample (courses/# of students)</i>	a- CIVE 430 – Environmental Engineering and Sustainability , 20-30
4. <i>SLO from the course</i>	a- Understand the interaction between civil engineering projects, environmental issues and sustainability;
5. <i>Assessment indicators</i>	Class assignment;
6. <i>Assessment instrument</i>	Program rubric
7. <i>Time (which semester(s))</i>	a-Fall 2025
8. <i>Responsible person(s)</i>	a-TBD
9. <i>Ways of reporting (how, to who)</i>	The results (quantitative) will be reported by faculty to the department chair via completion of the course Faculty Self-Assessment form.
10. <i>Ways of closing the loop</i>	Interaction between chair, faculty and industrial advisory board

Year 4: 2026-2027

1. <i>Which PLO(s) to assess</i>	1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics. (ILO 1)
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2. Is it aligned with ILO	Yes, ILO 1
3. Sample (courses/# of students)	e-CIVE 435 Highway and Pavement Design
4. SLO from the course	Apply engineering principles to design rigid and flexible pavements.
5. Assessment indicators	e-Homework
6. Assessment Instrument	Program rubric
7. Time (which semester(s))	e-Fall/Spring
8. Responsible person(s)	e- Engineering Faculty
9. Ways of reporting (how, to who)	The homework scores for the “Rigid pavement design homework: ESALs” based will be reported by faculty to the department chair via completion of the course Faculty Self-Assessment form.
10. Ways of closing the loop	Interaction between chair, faculty and industrial advisory board

Year 5: 2027-2028

1. Which PLO(s) to assess	5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives. (ILO 3 & 4).
2. Is it aligned with an ILO	Yes, ILO 3 and 4
3. Sample (courses/# of students)	c-CIVE 492
4. SLO from the course	Work as a team to create designs of real-world structures - Critically review and improve technical written reports - Communicate technical results confidently and persuasively in multiple modalities - Assess ethical implications associated with engineering practice
5. Assessment indicators	c-Capstone project (Hands-on real-world design of a building as part of the capstone project.)
6. Assessment instrument	Capstone design rubric
7. Time (which semester(s))	c-Fall/Spring
8. Responsible person(s)	c- Engineering Faculty
9. Ways of reporting (how, to who)	The results (qualitative and quantitative) will be reported by faculty to the department chair via completion of the course Faculty Self-Assessment form.
10. Ways of closing the loop	Interaction between chair, faculty and industrial advisory board

Year 5: 2027-2028

1. Which PLO(s) to assess	3. An ability to communicate effectively with a range of audiences. (ILO 2)
2. Is it aligned to ILO	Yes, ILO 2
3. Sample (courses/# of students)	c-CIVE 440 - Construction Engineering (3)
4. SLO from the course	Evaluate a request for proposals (RFP) and present the technical results confidently and persuasively in multiple modalities -Assess ethical implications associated with engineering practice
5. Assessment indicators	c-Final group project (Long Construction Engineering Design Group Project and Presentation Analyze novel situations and identify engineering skills and standards that are most applicable)
6. Assessment instrument	Final group project rubric
7. Time (which semester(s))	c-Fall/Spring
8. Responsible person(s)	c- Engineering Faculty
9. Ways of reporting (how, to who)	The results (qualitative and quantitative) will be reported by faculty to the department chair via completion of the course Faculty Self-Assessment form.
10. Ways of closing the loop	Interaction between chair, faculty and industrial advisory board