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1. Program Information

Faculty:	Engineering
Department:	Petroleum and Mining Engineering
Program Title:	Petroleum Engineering
Degree Type:[e.g., B.Sc., M.A., Ph.D.]	B.Sc
Program Coordinator:	Mr. Foad
PMT Members: [List of member]	Dr. Hewa Hussein Omar Dr. Sarkar Muhiadeen Hama Dr. Abas Khaksar Dr. Ako Darayi Mr. Ali Hussein Bag
Reporting Year: [e.g., 2024–2025]	Fall semester 2025-2026
Reporting Date: [e.g., April 30,2025]	15.02.2026

2. Program Assessment Plan (PAP)

Soran University is implementing a phased program assessment strategy, beginning with selected pilot programs to establish institutional capacity, refine tools, and ensure sustainable quality assurance practices

2025-2026 Assessment plan:

List all Program Learning Outcomes and indicate whether each was assessed this year.

PLO Code	PLO Description	Assessed This Year (Yes/No)
PLO1	Apply principles of mathematics, natural sciences, and engineering fundamentals to analyze and solve complex petroleum engineering problems	**Yes**

PLO2	Design petroleum engineering systems and solutions that meet project requirements while considering sustainability, environmental impact, health, safety, and economic constraints	**Yes**
PLO3	Design and conduct experiments and engineering investigations, analyze and interpret data, and draw sound conclusions using engineering judgment	**Yes**
PLO4	Use critical thinking and modern engineering tools to evaluate data and solutions for petroleum applications	**Yes**
PLO5	Work effectively as individuals and as members of multidisciplinary teams, demonstrating professional responsibility, ethical awareness, and communication skills	**Yes**
PLO6	Engage in independent learning, research, and continuous professional development to adapt to evolving technologies and engineering challenges	**Yes**

3. General Learning Outcomes (GLOs)

Usually 6-10 in Bachelor and 5-8 in Master

GLO No.	GLO Statement
GO 1	Use critical thinking and modern engineering tools to evaluate data and develop innovative solutions for petroleum applications
GO 2	Work effectively as individuals and as members of multidisciplinary teams, demonstrating professional responsibility, ethical awareness, and communication skills

4. Program Learning Outcomes (PLOs)-to-Course Mapping

Course Code	Course Title	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6
SOU20222	Introduction to petroleum engineering	I			I	I	
SOU20244	Petroleum Geomechanics	R	R		R		
SOU20243	Formation evaluation with well log	R	R	R	M	R	R
SOU20262	Drilling Engineering	M	M		M	R	R

Legend:
I = Introduced
R = Reinforced
M = Mastered

Summary Analysis

1. Which PLOs are covered multiple times across the curriculum?	PLO 1, PLP4 and PLP5
2. Are there any gaps where a PLO is not addressed sufficiently?	NO
3. Are PLOs introduced early and reinforced/demonstrated at later stages?	YES

5. General Learning Outcomes (GLOs)-to-Course Mapping

Course Code	Course Title	GLO 1	GLO 2	GLO 3
		Communication skills	**Critical thinking**	**Information management**
SOU20222	Introduction to petroleum engineering	X	X	

SOU20244	Petroleum Geomechanics		X	
SOU20243	Formation evaluation with well log			X

GLOs	# of Courses Aligned
GLO 1	1 Course
GLO 2	2 Courses
GLO 3	1 Course

It is important that each GLOs must have at least one intersection.

6. Course Learning Outcomes (CLOs)–to-Program Learning Outcomes (PLOs) Mapping

Course learning outcomes should be systematically aligned with the corresponding program learning outcomes for each individual course. The resulting mappings are to be included in the appendices of this report. All findings—along with identified gaps and recommendations arising from the mapping—must be clearly documented and communicated to course coordinators to support improvement and sustain effective practices. A summary of these findings, supported by appropriate justifications, should be presented in this section of the report.

Course Code	CLO Code	CLO Statement	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6
SOU20222	CLO 1	Explain the role of petroleum engineers and stages of oil and gas projects	✓					
SOU20222	CLO 2	Describe reservoir characterization and fluid flow basics	✓			✓		
SOU20222	CLO 3	Describe basic drilling techniques and safety principles	✓					
SOU20222	CLO 4	Explain production methods and surface facilities	✓					
SOU20222	CLO 5	Explain basic petroleum geology and geophysics concepts	✓					
SOU20222	CLO 6	Use petroleum engineering terminology correctly					✓	
SOU20222	CLO 7	Apply basic problem-solving and critical thinking in petroleum contexts	✓			✓		
SOU20244	CLO 1	Explain stress, strain, and rock mechanical properties	✓					
SOU20244	CLO 2	Apply stress transformation & Mohr's circle	✓			✓		
SOU20244	CLO 3	Analyze wellbore stability & design safe mud weight window	✓	✓		✓		

SOU20244	CLO 4	Evaluate pore pressure, fracture initiation & compaction	✓	✓		✓		
SOU20244	CLO 5	Predict sanding & geomechanically risks	✓	✓		✓		
SOU20244	CLO 6	Use Excel or simple software for geomechanics calculations				✓		
SOU20243	CLO 1	Identify logging tools and explain measurement principles	✓					
SOU20243	CLO 2	Interpret log responses under geological conditions	✓		✓			
SOU20243	CLO 3	Estimate reservoir properties from log data		✓	✓			
SOU20243	CLO 4	Use industry software for log processing and interpretation				✓		
SOU20243	CLO 5	Apply log interpretation to real engineering cases		✓	✓			
SOU20243	CLO 6	Communicate results and work in teams ethically					✓	
SOU20243	CLO 7	Demonstrate independent learning and adaptability to new tools						✓
SOU20262	CLO 1	Understand casing installation procedures	✓	✓				

SOU20262	CLO 2	Perform casing design calculations	✓	✓				
SOU20262	CLO 3	Apply well control principles and procedures	✓	✓				
SOU20262	CLO 4	Analyze geomechanics for directional and horizontal drilling	✓	✓		✓		
SOU20262	CLO 5	Design well trajectories and interpret survey data		✓	✓			
SOU20262	CLO 6	Solve special drilling problems		✓		✓		
SOU20262	CLO 7	Apply safety, environmental, and ethical principles		✓			✓	
SOU20262	CLO 8	Develop independent learning for advanced drilling technologies						✓

Summary Analysis

1. Does every PLO appear in at least one CLO across all courses?	Yes
2. For each PLO, does the curriculum show a logical sequence of: - Introduction in early-level courses (I), - Reinforcement in mid-level courses (R), - Mastery in final-year or capstone courses (M)?	PLO1 shows good sequence. PLO2 and PLO4 also show logical sequence. PLO3 is moderate but acceptable. PLO5 and PLO6 are acceptable for I and R but not logical for M.
3. Are PLOs introduced early and reinforced/demonstrated at later stages?	Mostly Yes, Specially for PLO1, PLO2, PLO3 and PLO4
4. Are all courses contributing	Yes

meaningfully to one or more PLOs?	
5. Are some courses overloaded with too many “M” codes?	The mastery level seems reasonable not overloaded.
6. Are there PLOs with too many CLOs marked “M” or “R” and others barely addressed?	Yes PLO1 and PLO4 are strongly covered. PLO5 and PLO6 appear reasonably frequently.
7.Do the assigned I/R/M levels make sense given the course level (year) and expected depth?	Yes
8.Horizontal: Are PLOs addressed consistently across multiple courses in the same level/year?	Yes
9. Vertical: Do CLOs evolve across years?	Yes, but mainly for technical skills. PLO5, PLO6 are not strongly covered.

7. Assessment Methods and Tools Used

Briefly describe the tools/methods used and their relationship to the PLOs.

Direct Methods:

Tool/Method	Description	PLOs Covered	Frequency of Use
Final Exam Analysis	Exam questions mapped to specific PLOs	PLO1, PLO2, PLO3	Semester end

Project Rubric	Evaluation of strategic plan project	PLO1, PLO4	Once per course

8. Program Modifications

Have there been any modifications to the program (Curriculum, Program Catalogue, and Course description) as a result of the assessment?

- ☐ Yes
- ✓ No

If yes, based on the actions and recommendations outlined, indicate whether these will result in modifications to the program (e.g., program catalogue, course descriptions, curriculum), and provide a rationale for the proposed changes.

9. Appendices

Attach any of the following as needed:

1. Data analysis tables or graphs
   CLO–PLO Mapping Matrix for each individual course of the program
2. Student feedback or survey summaries
3. Course-level reports

Glossary

Academic Program: A structured combination of courses, learning outcomes, and assessments that lead to a formal qualification such as a bachelor's or master's degree.

Alignment: The process of ensuring that course-level and program-level outcomes, assessments, and teaching methods are consistent with each other and with institutional or national standards.

Assessment Methods and Tools: Instruments and approaches used to evaluate student learning, including exams, projects, portfolios, surveys, and rubrics.

College: A major academic division within the university, composed of related departments or disciplines offering academic programs.

Courses: Individual units of study within an academic program, each with specific learning outcomes, content, and assessments.

Curriculum Mapping: The process of linking course learning outcomes (CLOs) to program learning outcomes (PLOs) to ensure coverage and coherence across the program.

Department: An academic unit within a college responsible for specific disciplines or subject areas and the delivery of corresponding courses.

Direct Assessment Method: An evaluation approach based on tangible student work (e.g., exams, presentations, portfolios) that demonstrates learning outcomes achievement.

Gaps: Areas where students' actual performance does not meet the intended learning outcome targets, indicating a need for improvement.

General Learning Outcomes (GLOs): Also referred to as *Institutional Learning Outcomes* or *21st Century Skills*, General Learning Outcomes represent broad, transferable competencies that all graduates are expected to achieve, regardless of their specific academic discipline. These outcomes typically include critical thinking, communication skills, ethical reasoning, digital literacy, teamwork, problem-solving, and lifelong learning. GLOs reflect the university's commitment to holistic education and are often embedded across curricula and co-curricular activities to promote civic responsibility, employability, and adaptability in a rapidly changing world.

I = Introduced: A code used in curriculum mapping to indicate the first point at which a learning outcome is introduced to students.

Indirect Assessment Method: An evaluation approach that gathers perceptions of learning (e.g., surveys, interviews, feedback), rather than direct evidence of student performance.

M = Mastered: A code used in curriculum mapping to indicate that students are expected to demonstrate full competence in a learning outcome.

Mapping Matrix: A table that visually represents the relationship between CLOs and PLOs, using indicators such as I, R, or M.

PLOs (Program Learning Outcomes): Statements that describe what students are expected to know, do, and value by the end of an academic program.

PMT (Program Management Team): A group of academic staff responsible for overseeing the development, implementation, and assessment of a specific academic program.

POs (Program Objectives): Broad statements describing the intended goals or purposes of an academic program, often aligned with institutional and societal needs.

Performance Indicators: Quantifiable or observable criteria used to measure whether learning outcomes have been achieved.

Program Assessment Report Template: A standardized format used to document the assessment process, results, analysis, and action plans for continuous improvement of an academic program.

Program Coordinator: The faculty member responsible for managing the academic and quality aspects of a specific academic program.

R = Reinforced: A code used in curriculum mapping to show that a learning outcome is further developed or strengthened in a course.

Target: The predetermined level of performance or achievement expected for a given learning outcome or indicator.