RESOURCES-TO-PROGRAMS MATRIX

Institution: Soran University

Faculty: Faculty of Engineering

Department: Petroleum and Mining Engineering

Prepared By: ICA

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1. Program Overview

#	Degree Program	Award	Total ECTS	Duration
1	BSc in Petroleum Engineering	Bachelor of Science	240	4 years
2	BSc in Mining Engineering	Bachelor of Science	240	4 years

2. Laboratory Inventory

#	Laboratory	Department	Location	Primary Use
1	Drilling Engineering Lab	Petroleum Engineering	Faculty of Engineering	Drilling fluid testing, rheology, filtration
2	Reservoir Engineering Lab	Petroleum Engineering	Faculty of Engineering	Core analysis, porosity, permeability, EOR

3. Mapping: Drilling Engineering Lab → Program & Courses

#	Equipment / Resource	Purpose	Supported Course(s)	Course Code	Program
1	Rotational Viscometer	Measures rheological properties of drilling mud	Drilling Fluid and Cementing	SOU20252	Petroleum & Mining

2	Mud Balance	Determines density of drilling fluid	Drilling Fluid and Cementing	SOU20252	Petroleum & Mining
3	Marsh Funnel	Measures funnel viscosity of drilling mud	Drilling Fluid and Cementing	SOU20252	Petroleum & Mining
4	Standard API Filter Press	Tests filtration properties of drilling fluids	Drilling Fluid and Cementing	SOU20252	Petroleum & Mining
5	Sand Content Equipment	Measures sand content in drilling fluid	Drilling Fluid and Cementing	SOU20252	Petroleum & Mining
6	pH Meter (Eutech pH 700)	Measures acidity/ alkalinity of drilling fluids	Drilling Fluid and Cementing; HSE	SOU20252 ; SOU20254	Petroleum & Mining
7	M3600 Viscometer (Grace)	Automated rheology measurem ent	Drilling Fluid and Cementing; Well Testing	SOU20252 ; SOU20272	Petroleum
8	Brookfield Viscometer (DV2T)	Advanced viscosity measurem ent	Drilling Fluid and Cementing; Reservoir Simulation	SOU20252 ; SOU20270	Petroleum
9	Petroleum Product Density Tester	Measures specific gravity, density, API	Properties of Petroleum Products	SOU20245	Petroleum

10	HTHP Filter Press	Tests drilling fluids under high temp/ pressure	Drilling Fluid and Cementing; Well Completion	SOU20252 ; SOU20250	Petroleum & Mining
11	Water Distiller	Produces distilled water for lab tests	All lab-based courses	Multiple	Petroleum & Mining
12	Cleveland Flash Tester	Measures flash/fire point (ASTM D92)	Properties of Petroleum Products	SOU20245	Petroleum
13	Electronic Balance	Accurate mass measurem ent	All lab-based courses	Multiple	Petroleum & Mining
14	Hot Plate Magnetic Stirrer	Heats and stirs solutions	Drilling Fluid and Cementing; HSE	SOU20252 ; SOU20254	Petroleum & Mining

4. Mapping: Reservoir Engineering Lab → Program & Courses

#	Equipment / Resource	Purpose	Supported Course(s)	Cours e	Pr og
1	Gas Permeameter	Measures core permeability	Petroleum Reservoir	SOU2 0260:	Petrol eum
2	Hilum Porosimeter	Measures porosity of rock	Petroleum Reservoir	SOU2 0260:	Petrol eum
3	IFT & Contact Angle	Measures interfacial	Enhanced Oil Recovery:	SOU2 0273:	Petrol eum
4	Core Flooding System	Simulates fluid flow in	Enhanced Oil Recovery:	SOU2 0273:	Petrol eum
5	Core Plugging Machine	Extracts cylindrical core	Petroleum Reservoir	SOU2 0260:	Petrol eum
6	Core Trim Saw	Cuts and trims core samples	Petroleum Reservoir	SOU2 0260:	Petrol eum
7	Soxhlet Extractor	Extracts compounds	Enhanced Oil Recovery:	SOU2 0273:	Petrol eum

8	Lab Oven	Heats and dries samples	All lab-based courses	Multi ple	Petrol eum
9	Water Bath	Controlled-temperature	Reservoir Engineering:	SOU2 0260:	Petrol eum
10	Noise Isolating Chamber	Minimizes noise for	Reservoir Engineering:	SOU2 0260:	Petrol eum
11	Conductivity Meter	Measures conductivity of	HSE; Reservoir Engineering	SOU2 0254:	Petrol eum
12	pH Meter (Oakton PC	Measures acidity/	HSE; Reservoir Engineering	SOU2 0254:	Petrol eum
13	Electronic Balance	Accurate mass measurement	All lab-based courses	Multi ple	Petrol eum
14	Hot Plate Magnetic	Heats and stirs solutions	Reservoir Engineering:	SOU2 0260:	Petrol eum

5. Summary: Labs by Program

Program	Drilling Engineering	Reservoir Engineering Lab	Total Lab Courses Supported
BSc in Petroleum Engineering	✔	✔	12
BSc in Mining Engineering	✔ (shared courses)	✔ (shared courses)	8

6. Summary: Courses Supported by Labs

Course Code	Course Name	Lab Used	Program
SOU20244	Rock Mechanics	Reservoir Engineering Lab	Petroleum & Mining
SOU20245	Properties of Petroleum Products	Drilling Engineering Lab	Petroleum
SOU20247	Applied Geophysics	Reservoir Engineering Lab	Petroleum & Mining
SOU20250	Well Completion and Intervention	Drilling Engineering Lab	Petroleum
SOU20252	Drilling Fluid and Cementing	Drilling Engineering Lab	Petroleum & Mining
SOU20254	Health, Safety and Environment (HSE)	Both Labs	Petroleum & Mining
SOU20260	Petroleum Reservoir Engineering	Reservoir Engineering Lab	Petroleum
SOU20270	Reservoir Simulation	Reservoir Engineering Lab	Petroleum

SOU20272	Well Testing	Drilling Engineering Lab	Petroleum
SOU20273	Enhanced Oil Recovery	Reservoir Engineering Lab	Petroleum
SOU20235	Petrology and Mineralogy	Reservoir Engineering Lab	Petroleum & Mining