TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION – Oil Properties – second year

This course covers all details of Crude oil physical properties and oil products. It discusses all experiments required to test those products to be useful for different usages in industry and explain its advantages

1. Teaching Institution	Al-Ayen University/Petroleum Engineering College
2. University Department/Centre	Petroleum Engineering
3. Course title/code	Oil properties / **PE201**
4. Modes of Attendance offered	classes+ Practical at the Lab
5. Semester/Year	First semester/ 2022-2023
6. Number of hours tuition (total)	2 hours (1 theoretical +3 practical)hours
7. Date of production/revision of this specification 9 / 10 / 2022	
8. Aims of the Course	
This course aims to introduce the second stage student in petroleum engineering to crude oil and its classification, specifications and characteristics, in addition to identifying oil derivatives and the benefits of their use, by conducting the necessary experiments to determine their validity and scope of use.	

9· Learning Outcomes, Teaching ,Learning and Assessment Methode

A- Cognitive goals .

A1. Developing the skill of conducting experiments, extracting results, presenting them in the form of standard curves, and comparing them with the curves of manufacturers

A2. Encourage teamwork in the laboratory work environment in the form of groups

A3. Develop a spirit of creativity in the method of conducting experiments

A4.

B. The skills goals special to the course.

B1. Contributing in new ideas creation for development devices used in experiments

B2. Experience of manufacturing devices that simulate the work of approved standard devices

Teaching and Learning Methods

1-lectures

2- Completing experiments in laboratories

3- Scientific discussions and dialogues and asking questions

4- Completing tasks by student work teams in the laboratory

5-Discuss laboratory test reports

Assessment methods

• Monthly exams

• daily exams

• Homework

• Evaluating the performance in the laboratory and evaluating the percentage of completion of laboratory tasks

C. Affective and value goals

C1. Develop students' ability to conduct reliable experiments with results for institutions and companies

C2.Introducing the idea of scientific research and conducting postgraduate projects based on equipment in the laboratory

Teaching and Learning Methods

1-lectures

2- Completing experiments in laboratories

3- Scientific discussions and dialogues and asking questions

4- Completing tasks by student work teams in the laboratory

5-Discuss laboratory test reports

Assessment methods

D. General and rehabilitative transferred skills(other skills relevant to employability and personal development)

D1. Monthly exams

D2. Homeworks

D3. Final exam

D4.

10. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	1 + 3lab	Distinguishing crude oil properties	**Crude oils (chemical composition, classification, properties)**	Presentation + dialogue and discussion	Homework + report
2	1 + 3lab	Understanding density concept and the equation	**Density, specific gravity and coefficient of expansion**	Presentation + dialogue and discussion	Homework + report
3	1 + 3lab	Understanding viscosity concept	**Viscosity , molecular weight**	Presentation + dialogue and discussion	Homework + report
4	1 + 3lab	Learning heat affections and calculations	**Vapor pressure, specific heat, laten heat**	Presentation + dialogue and discussion	exam
5	1 + 3lab	Understanding heat combustion and range borders	**Heat of combustion, boiling range**	Presentation + dialogue and discussion	Homework + report
6	1 + 3lab	Learning flash point experiment	**Flash point, pour point**	Presentation + dialogue and discussion	Homework + report
7	1 + 3lab	Understanding sulfur affections on properties	**Sulfur content, aniline point**	Presentation + dialogue and discussion	Homework + report
8	1 + 3lab	Learning tar properties using the experiments	**Penetration number, softening point**	Presentation + dialogue and discussion	exam
9	1 + 3lab	Understanding	**Crude oil evaluation,**	Presentation + dialogue and	Homework + report

		crude oil evaluation method		discussion	
10	1 + 3lab	**Understanding the distillation process through the experiment**	**fractional distillation and TBP curves**	Presentation + dialogue and discussion	Homework + report
11	1 + 3lab	**Learning dehydration method and analysis**	**Analysis of fraction, dehydration of crude oil**	Presentation + dialogue and discussion	Homework + report
12	1 + 3lab	**Understanding natural gas properties and it's affection on usage**	**Natural gas properties**	Presentation + dialogue and discussion	Homework + report
13	1 + 3lab	**Distinguishing physical properties of water in oil field**	**Oil field water properties**	Presentation + dialogue and discussion	Final Exam

11. Infrastructure	
1. Books Required reading:	The Properties of Petroleum Fluids, William D. McCain, 2008
2. Main references (sources)	A Catalogue of Oil Properties, Mark A. Bobra, P. T. Chung, 1998
A- Recommended books and references (scientific journals, reports…).	Petroleum Engineer's Guide to Oil Field Chemicals and Fluids, Johannes Fink, 2011
B-Electronic references, Internet sites…	

12. The development of the curriculum plan

Using the published research from ASTM accredited international institutes
Access to research related to the development and modification of devices, methods of use and all updated options