DEPARTMENT OF PETROLEUM ENGINEERING

Ref. No.: PU/SOE/PET/SD/HMTPE/2022-23/CIR/01 Date: 11/10/2022

Circular

Academic Year: 2022 – 2023 **Course:** PET2008 **Semester:** 6th

Dear students of 6PET-1,

It is to inform you all that a "Experiential Learning" activity for the course **PET2008 Heat and Mass Transfer for Petroleum Engineering** is schedule on 18/10/2022, from 9:00 AM to 10:40 AM (OFFLINE MODE).

It is mandatory for all the student to remain present during the activity session and take part in numerical solving.

Dr. Abhinav Kumar
Instructor In-charge

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PRESIDENCY UNIVERSITY Registrar BANGALORE

REPORT ON EXPERIENCIAL LEANING

Circular Date and No.	Dtd: 11/10/2022 PU/SOE/PET/SD/HMTPE/2022-23/CIR/01	**Date of Event**	18.10.2022
Type of learning	Skill development	**Event Type:**	Experiential Learning
Mode of Event:	Offline	**No. of Participant(s):**	27
Course Code/Course Name	PET2008 Heat and Mass Transfer for Petroleum Engineering		
Department	Department of Petroleum Engineering		
Instructor In charge	Dr. Abhinav Kumar Assistant Professor, Department of Petroleum Engineering		

Event objective	The event was conducted to test the knowledge of students on the topic related to the experiential learning in petroleum industry with a primary objective of improving the understanding of students through experiments.
Topic discussed	Different experiments based on Heat Transfer Concepts
Outcome of the event	i. Improvement in understanding of theory concepts. ii. Improvement in students' ability to be more observant and inquisitive.
Assessment	i. Type of Assessment: Experiential learning ii. Task Assigned:

Grp. No.	ID No.	Student Name	Topic for Experiment
1	20201PET0001	Sohael K S	Computer controlled heat transfer through composite wall
	20201PET0004	Rachan Balakrishna Shetty	
	20201PET0006	Praveen B	
	20201PET0008	Nallabhotula Dushyanth	
2	20201PET0033	Shekar	Parallel/ Counter flow heat transfer
	20201PET0010	Pradeep Kumar Rathod	
	20201PET0011	A M Rizwan	
	20201PET0012	Mohammed Shazan	
	20201PET0014	Zaheed Ahmed	
3	20201PET0015	Mujtba Aamir Ahmed	Emissivity Measurement
	20201PET0031	Bandla Hareesh	

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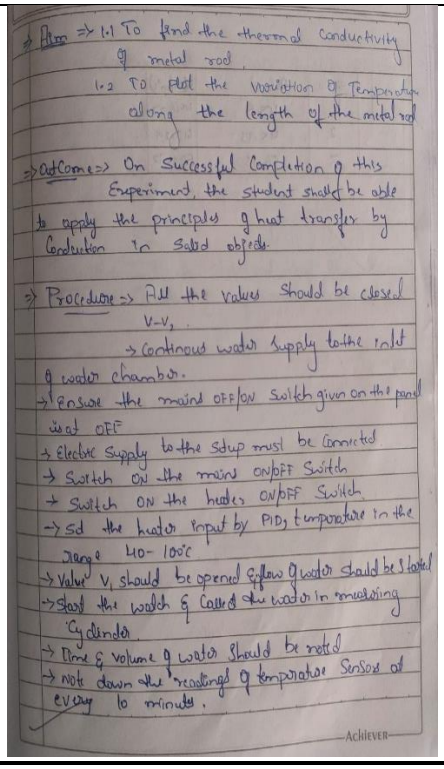
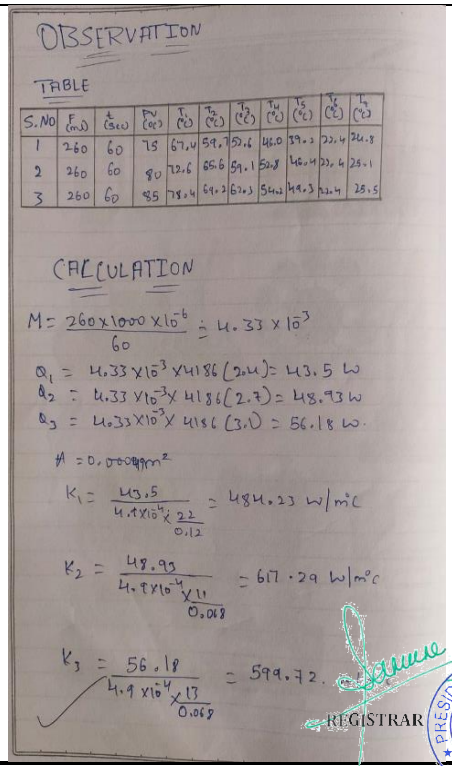
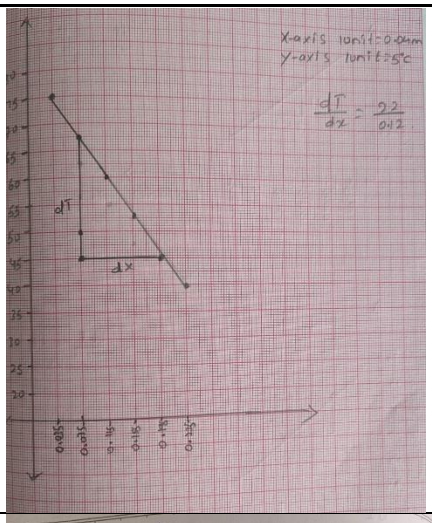
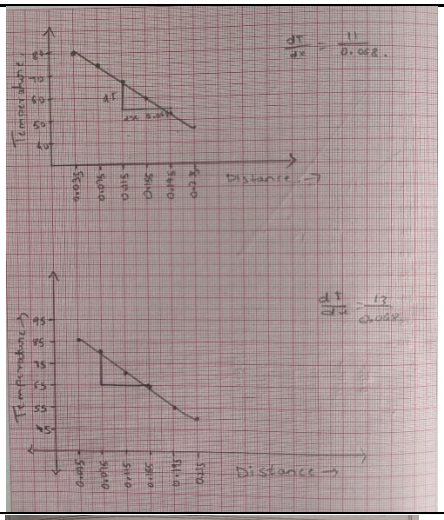
	20201PET0018	Nuthan M S	
	20201PET0019	Pranav A	
	20201PET0021	R Janardhan Reddy	
4	20201PET0022	Mohammed Shadim D K	Heat transfer in forced convection
	20201PET0023	Prathivraj S	
	20201PET0026	Ajmal Akbar Babu	
	20201PET0030	Aqib Ahmed Sharieef	
	20201PET0016	Sidharth Murli	
5	20201PET0009	Kotishwaran V	Thermal conductivity of metal rod
	20201PET0034	Kommineni Hemanth	
	20201PET0029	Pavan Goud	
	20201PET0017	Bhoomika Satish	
6	20191PET0011	Fayaz Pasha	Unsteady heat transfer
	20211LPE0001	Muhammed Swalih V P	
	20191PET0009	C S Nishant	
	20201PET9001	Mohammed Shahid	

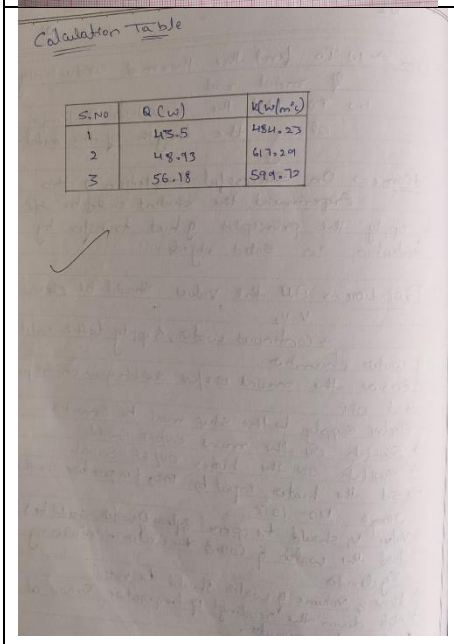
iii. Sample answers by students:



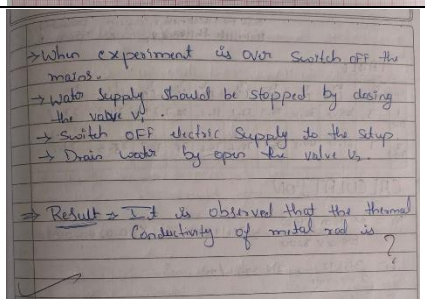







Calculation Table

S.No	Q (w)	K(w/m°c)
1	43.5	484.23
2	48.93	617.29
3	56.18	599.72


→ When experiment is over switch OFF the mains.
→ Water supply should be stopped by closing the valve V1.
→ Switch OFF electric supply to the setup
→ Drain water by open the valve V2.

⇒ Result = It is observed that the thermal Conductivity of metal rod is ?

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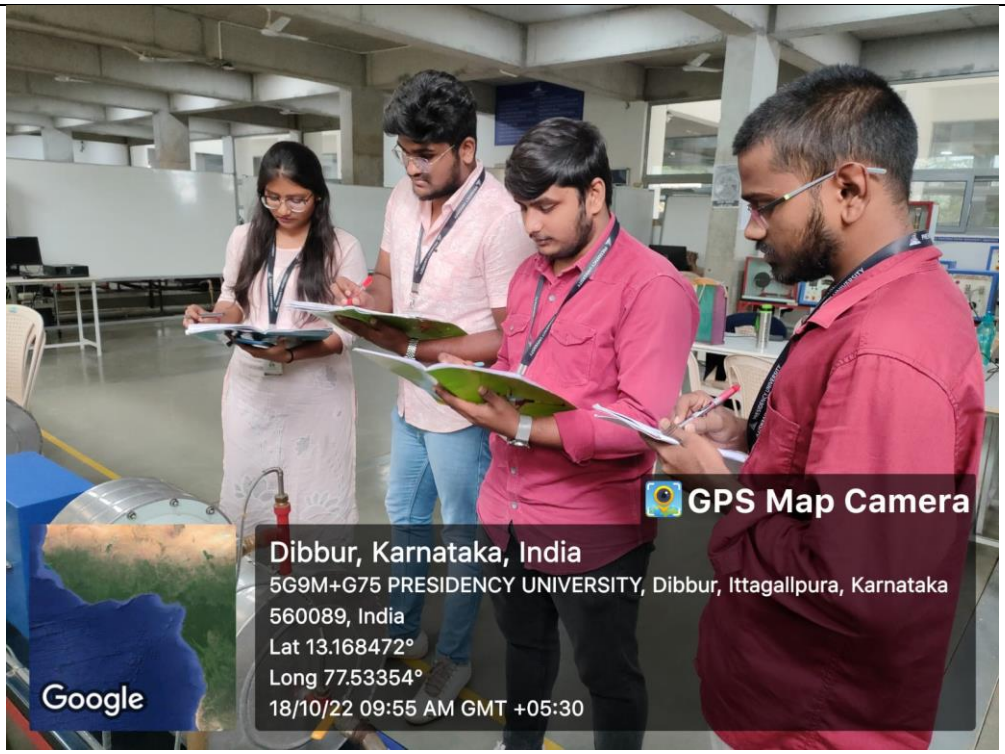
Event photo



Attendance sheet

Sl. No.	ID No.	Student Name	Attendance
1	20201PET0001	Sohael K S	P
2	20201PET0004	Rachan Balakrishna Shetty	P
3	20201PET0006	Praveen B	P
4	20201PET0008	Nallabhotula Dushyanth	P
5	20201PET0009	Kotishwaran V	P
6	20201PET0010	Pradeep Kumar Rathod	P
7	20201PET0011	A M Rizwan	P
8	20201PET0012	Mohammed Shazan	P
9	20201PET0014	Zaheed Ahmed	P
10	20201PET0015	Mujtba Aamir Ahmed	P
11	20201PET0016	Siddharth Murali	P

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		12	20201PET0017	Bhoomika Satish	P
		13	20201PET0018	Nuthan M S	P
		14	20201PET0019	Pranav A	P
		15	20201PET0021	R Janardhan Reddy	P
		16	20201PET0022	Mohammed Shadim D K	P
		17	20201PET0023	Prathivraj S	P
		18	20201PET0026	Ajmal Akbar Babu	P
		19	20201PET0029	Pavan Goud	P
		20	20201PET0030	Aqib Ahmed Sharieef	P
		21	20201PET0031	Bandla Hareesh	P
		22	20201PET0033	Shekar	P
		23	20201PET0034	Kommineni Hemanth	P
		24	20201PET9001	Mohammed Shahid	P
		25	20191PET0009	C S Nishant	P
		26	20191PET0011	Fayaz Pasha	P
		27	20211LPE0001	Muhammed Swalih V P	P

Signature of Instructor In charge
Dr. Abhinav Kumar
Assistant Professor
Department of Petroleum Engineering

Dr. Suman Paul
Professor and Head
Department of Petroleum Engineering

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DEPARTMENT OF PETROLEUM ENGINEERING

Ref. No.: PU/SOE/PET/SD/PIC/2022-23/CIR/01 Date: 01/05/2023

Circular

Academic Year: 2022 – 2023 **Course:** PET2005 **Semester:** 4th

Dear students of 4PET-1,

It is to inform you all that a "Experiential Learning" activity for the course **PET2005 Fundamental of Instrumentation and Control Engineering** is schedule on 05/05/2023, from 9:00 AM to 10:50AM (OFFLINE MODE).

It is mandatory for all the student to remain present during the activity session and take part in numerical solving.

Dr. Sourav Mukherjee

Instructor In-charge

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ANNEXURE-I

Sl. No.	ID No.	Student Name
1	20211PET0001	MOHAMED SAADULLAH S
2	20211PET0002	ROSHAN T
3	20211PET0003	SYED LUQMAN J
4	20211PET0004	BELIM MOH SAAD MOHAMMEDBHAI
5	20211PET0005	MOHAMMAD SUHAIL
6	20211PET0008	VANKALA JAI SPHOORTHI
7	20211PET0009	AFEEZ
8	20211PET0010	HITHESH T
9	20211PET0011	GANUGA ROSHAN
10	20211PET0012	MOHAMED NAIF NIHAD ALI
11	20211PET0013	DEEPAK JADHAV
12	20211PET0014	DARSHAN D P
13	20211PET0015	MOHAMMAD YASIR BYAKOD
14	20211PET0016	ASMA THASNIM
15	20211PET0017	IBRAHIM NAWAZ M
16	20211PET0018	SANDEEP IYAGAR
17	20211PET0019	KIRAN EKIRAN
18	20211PET0020	YASHWANTH GOWDA M
19	20211PET0021	MAYUR P
20	20211PET0022	YASHWANTH S
21	20211PET0023	MOHAMMED SHABAZ KHALANDER D
22	20211PET0024	BOLLAMA REDDY HIMAVENKATA MANKANTHA
23	20211PET0025	FAZIL SHAREEF H A
24	20211PET0026	PATEL MOHAMMED ADNAN MOHAMMED GOUS
25	20211PET0027	SYED USMAN
26	20211PET0028	ZOYA FALAK
27	20201PET0027	YARRAMSETTI CHAITANYA SRI
28	20191PET0050	SHAIK GOUSPEER VALI
29	20221LPE0001	SHAIK TABISH RIYAZAHMED

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REPORT ON EXPERIENTIAL LEANING

Circular Date and No.	Dt: 01/05/2023 PU/SOE/PET/SD/PIC/2022-23/CIR/01	**Date of Event**	05.05.2023
Type of learning	Skill development	**Event Type:**	Experiential Learning
Mode of Event:	Offline	**No. of Participant(s):**	29
Course Code/Course Name	PET2005 FUNDAMENTAL OF INSTRUMENTATION AND CONTROL ENGINEERING		
Department	Department of Petroleum Engineering		
Instructor In charge	Dr. Sourav Mukherjee Assistant Professor, Department of Petroleum Engineering		

Event objective	The event was conducted to test the knowledge of students on the topic related to the experiential learning in petroleum industry with a primary objective of improving the understanding of students through experiments.
Topic discussed	Different experiments based on Fundamental of Instrumentation and Process Control Concepts
Outcome of the event	i. Improvement in understanding of theory concepts. ii. Improvement in students' ability to be more observant and inquisitive.
Assessment	i. Type of Assessment: Experiential learning ii. Task Assigned:

Grp. No.	ID No.	Student Name	Topic for Experiment
1	20211PET0001	MOHAMED SAADULLAH S	CALIBRATION OF THERMOCOUPLE
	20211PET0002	ROSHAN T	
	20211PET0003	SYED LUQMAN J	
	20211PET0004	BELIM MOH SAAD MOHAMMEDBHAI	
	20211PET0005	MOHAMMAD SUHAIL	
	20211PET0008	VANKALA JAI SPHOORTHI	
2	20211PET0009	AFEEZ	SINGLE TANK SYSTEM
	20211PET0010	HITHESH T	
	20211PET0011	GANUGA ROSHAN	

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	20211PET0012	MOHAMED NAIF NIHAD ALI	
	20211PET0013	DEEPAK JADHAV	
	20211PET0014	DARSHAN D P	
	20211PET0015	MOHAMMAD YASIR BYAKOD	
3	20211PET0016	ASMA THASNIM	NON-INTERACTING SYSTEM
	20211PET0017	IBRAHIM NAWAZ M	
	20211PET0018	SANDEEP IYAGAR	
	20211PET0019	KIRAN EKIRAN	
	20211PET0020	YASHWANTH GOWDA M	
	20211PET0021	MAYUR P	INTERACTING AND NON INTERACTING SYSTEM
	20211PET0022	YASHWANTH S	
	20211PET0023	MOHAMMED SHABAZ KHALANDER D	
	20211PET0024	BOLLAMA REDDY HIMAVENKATA MANKANTHA	
4	20211PET0018	SANDEEP IYAGAR	MANOMETER
	20211PET0019	KIRAN EKIRAN	
	20211PET0020	YASHWANTH GOWDA M	
	20211PET0021	MAYUR P	
	20211PET0022	YASHWANTH S	
5	20211PET0025	FAZIL SHAREEF H A	FLUID FLOW CONTROLLER
	20211PET0026	PATEL MOHAMMED ADNAN MOHAMMED GOUS	
	20211PET0027	SYED USMAN	
	20211PET0028	ZOYA FALAK	
	20201PET0027	YARRAMSETTI CHAITANYA SRI	
	20191PET0050	SHAIK GOUSPEER VALI	
	20221LPE0001	SHAIK TABISH RIYAZAHMED	

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Event photo

Attendance sheet

Sl. No.	ID No.	Student Name	Attendance
1	20211PET0001	MOHAMED SAADULLAH S	P
2	20211PET0002	ROSHAN T	P
3	20211PET0003	SYED LUQMAN J	P
4	20211PET0004	BELIM MOH SAAD MOHAMMEDBHAI	P
5	20211PET0005	MOHAMMAD SUHAIL	P
6	20211PET0008	VANKALA JAI SPHOORTHI	P
7	20211PET0009	AFEEZ	P
8	20211PET0010	HITHESH T	P
9	20211PET0011	GANUGA ROSHAN	P

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		10	20211PET0012	MOHAMED NAIF NIHAD ALI	P
		11	20211PET0013	DEEPAK JADHAV	P
		12	20211PET0014	DARSHAN D P	P
		13	20211PET0015	MOHAMMAD YASIR BYAKOD	A
		14	20211PET0016	ASMA THASNIM	P
		15	20211PET0017	IBRAHIM NAWAZ M	P
		16	20211PET0018	SANDEEP IYAGAR	P
		17	20211PET0019	KIRAN EKIRAN	P
		18	20211PET0020	YASHWANTH GOWDA M	P
		19	20211PET0021	MAYUR P	P
		20	20211PET0022	YASHWANTH S	P
		21	20211PET0023	MOHAMMED SHABAZ KHALANDER D	P
		22	20211PET0024	BOLLAMA REDDY HIMAVENKATA MANKANTHA	P
		23	20211PET0025	FAZIL SHAREEF H A	P
		24	20211PET0026	PATEL MOHAMMED ADNAN MOHAMMED GOUS	P
		25	20211PET0027	SYED USMAN	P
		26	20211PET0028	ZOYA FALAK	P
		27	20201PET0027	YARRAMSETTI CHAITANYA SRI	P
		28	20191PET0050	SHAIK GOUSPEER VALI	P
		29	20221LPE0001	SHAIK TABISH RIYAZAHMED	P

Signature of Instructor In charge
Dr. Sourav Mukherjee
Assistant Professor
Department of Petroleum Engineering

Dr. Suman Paul
Professor and Head
Department of Petroleum Engineering

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BANGALORE

DEPARTMENT OF PETROLEUM ENGINEERING

Ref. No.: PU/SOE/PET/SD/IOGRS/2022-23/CIR/01 Date: 18/04/2023

Circular

Academic Year : 2022 – 2023 **Course:** PET2010 **Semester:** 6th

Dear students of 6PET-1,

It is to inform you all that a "Experiential Learning" activity for the course **PET 2010 Introduction to Oil and Gas Reservoir Simulation** is schedule on 02/05/2023, from 1:20 PM to 2:10 PM (OFFLINE MODE).

It is mandatory for all the student to remain present during the activity session and take part in the activity

Barasha Deka.

Dr. Barasha Deka

Instructor In-charge

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REPORT ON EXPERIENTIAL LEARNING

Circular Date and No.	Dtd: 18/04/2023 PU/SOE/PET/SD/IOGRS/2022-23/CIR/01	**Date of Event**	02.05.2023
Type of learning	Skill development	**Event Type:**	Experiential Learning
Mode of Event:	Offline	**No. of Participant(s):**	27
Course Code/Course Name	PET2010 Introduction to Oil and Gas Reservoir Simulation		
Department	Department of Petroleum Engineering		
Instructor In charge	Dr. Barasha Deka Assistant Professor, Department of Petroleum Engineering		

Event objective	The event was conducted to test the knowledge of students on the topic related to the experiential learning in petroleum industry with a primary objective of improving the understanding of students through experiments.
Topic discussed	CMG Simulator
Outcome of the event	i. Improvement in understanding of theory concepts. ii. Improvement in students' ability to be more observant and inquisitive.
Assessment	i. Type of Assessment: Experiential learning ii. Task Assigned: Geometric Modelling - Input and Modify model dimensions and geometry as per given conditions iii. Sample answers by students:

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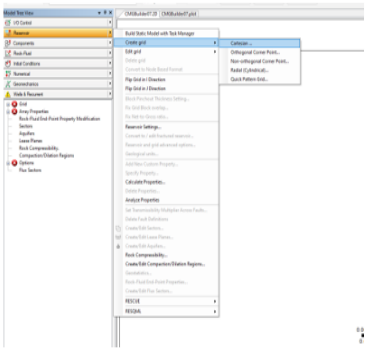
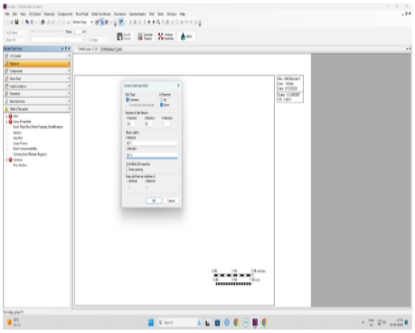
Exp.– Geometric Modelling

Input and Modify model dimensions and geometry as per given conditions

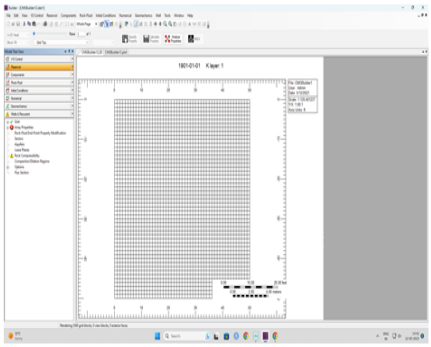


Under*Reservoir>Create Grid>Cartesian.*



We input the values accordingly as shown in the figure above,

The below Cartesian grid is created



EXP.03 – FLUID PROPERTIES MODELLING

FLUID PROPERTIES THAT CAN BE QUANTIFIED IN A GIVEN SIMULATOR

Select components > Black oil model

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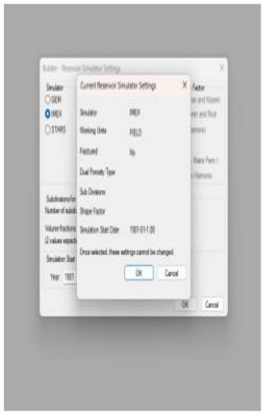
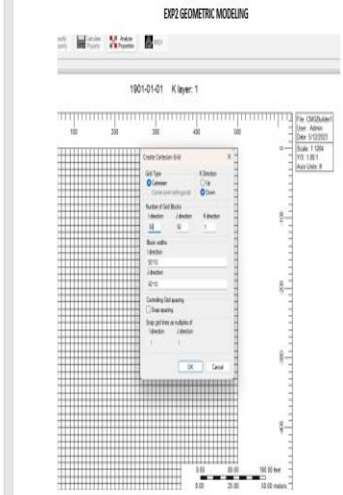
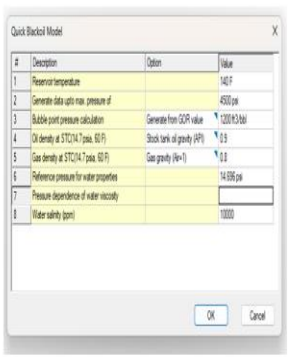
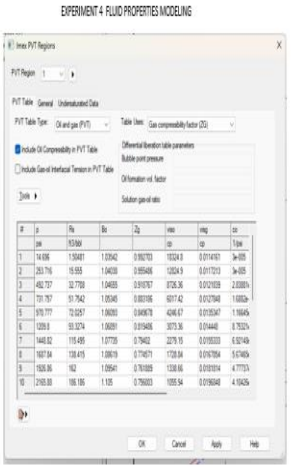
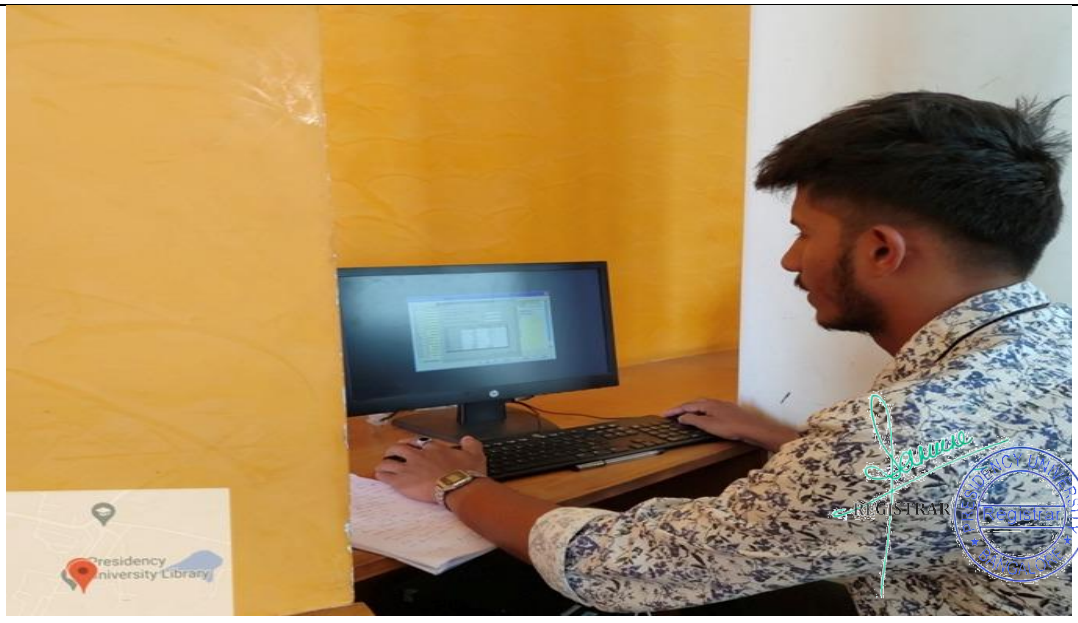
	 EXP1 CMG INTRODUCTION   EXP2 GEOMETRIC MODELING  EXP 3 FLUID PROPERTIES MODELING  EXPERIMENT 4 FLUID PROPERTIES MODELING  EXPERIMENT 5 DEFINE POROSITY AND PERMIABILITY
Event photo	

Attendance sheet

Sl. No.	ID No.	Student Name	Attendance
1	20201PET0001	Sohael K S	P
2	20201PET0004	Rachan Balakrishna Shetty	P
3	20201PET0006	Praveen B	P
4	20201PET0008	Nallabhotula Dushyanth	P
5	20201PET0009	Kotishwaran V	P
6	20201PET0010	Pradeep Kumar Rathod	P
7	20201PET0011	A M Rizwan	P
8	20201PET0012	Mohammed Shazan	P
9	20201PET0014	Zaheed Ahmed	P
10	20201PET0015	Mujtba Aamir Ahmed	P
11	20201PET0016	Siddharth Murali	P
12	20201PET0017	Bhoomika Satish	P
13	20201PET0018	Nuthan M S	P
14	20201PET0019	Pranav A	P
15	20201PET0021	R Janardhan Reddy	P
16	20201PET0022	Mohammed Shadim D K	P
17	20201PET0023	Prathivraj S	P
18	20201PET0026	Ajmal Akbar Babu	P
19	20201PET0029	Pavan Goud	P
20	20201PET0030	Aqib Ahmed Sharieef	P
21	20201PET0031	Bandla Hareesh	P
22	20201PET0033	Shekar	P
23	20201PET0034	Kommineni Hemanth	P

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		24	20201PET9001	Mohammed Shahid	P
		25	20191PET0009	C S Nishant	P
		26	20191PET0011	Fayaz Pasha	P
		27	20211LPE0001	Muhammed Swalih V P	P

Barasha Deka.

Signature of Instructor In charge
Dr. Barasha Deka
Assistant Professor
Department of Petroleum Engineering

Dr. Suman Paul
Professor and Head
Department of Petroleum Engineering

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GAIN MORE KNOWLEDGE
REACH GREATER HEIGHTS

Presidency University, Bengaluru
Itgalpur, Rajanakunte, Yelahanka, Bengaluru – 560064

DEPARTMENT OF PETROLEUM ENGINEERING

Ref. No.: PU/SOE/PET/SD/RFM/2022-23/CIR/01 Date: 15/05/2023

Circular

Academic Year: 2022 – 2023 **Course:** PET2012 **Semester:** 4th

Dear students of 4PET-1,

It is to inform you all that a "experiential learning" activity for the course **PET2012 Reservoir Fluid Mechanics** is schedule on 25/05/2023, from 9:00 PM to 10:40 AM (OFFLINE MODE). It is mandatory for all the student to remain present during the activity session and take part in numerical solving.

Dr. Abhinav Kumar
Instructor In-charge

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REPORT ON EXPERIENCIAL LEANING

Circular Date and No.	Dtd: 15/05/2023 PU/SOE/PET/SD/RFM/2022-23/CIR/01	**Date of Event**	25.05.2023
Type of learning	Skill development	**Event Type:**	Experiential Learning
Mode of Event:	Offline	**No. of Participant(s):**	29
Course Code/Course Name	PET2012 Reservoir Fluid Mechanics		
Department	Department of Petroleum Engineering		
Instructor In charge	Dr. Abhinav Kumar Assistant Professor, Department of Petroleum Engineering		

Event objective	The event was conducted to test the knowledge of students on the topic related to the experiential learning in petroleum industry with a primary objective of improving the understanding of students through experiments.
Topic discussed	Different experiments based on Reservoir Fluid Mechanics Concepts
Outcome of the event	i. Improvement in understanding of theory concepts. ii. Improvement in students' ability to be more observant and inquisitive.
Assessment	i. Type of Assessment: Experiential learning ii. Task Assigned:

Grp. No.	ID No.	Student Name	Topic for Experiment
1	20211PET0001	Mohamed Saadullah S	Minor Losses in Pipe
	20211PET0003	Syed Luqman J	
	20211PET0004	Belim Moh Saad Mohammedbhai	
	20211PET0005	Mohammad Suhail	
2	20211PET0008	Vankala Jai Sphoorthi	Major Losses in Pipe
	20211PET0009	Afeez	
	20211PET0010	Hithesh T	
	20211PET0011	Ganuga Roshan	
	20211PET0012	Mohamed Naif Nihad Ali	

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	3	20211PET0013	Deepak Jadhav	Reynold's Number
		20211PET0014	Darshan D P	
		20211PET0015	Mohammad Yasir Byakod	
		20221LPE0001	Shaik Tabish Riyazahmed	
		20211PET0017	Ibrahim Nawaz M	
	4	20211PET0018	Sandeep Iyagar	Discharge of Fluid
		20211PET0019	Kiran Ekiran	
		20191PET0050	Shaik Gouspeer Vali	
		20211PET0021	Mayur P	
		20211PET0022	Yashwanth S	
	5	20211PET0023	Mohammed Shabaz Khalander D	Impact of Jet
		20211PET0024	Bollama Reddy Himavenkata Mankantha	
		20211PET0025	Fazil Shareef H A	
		20211PET0026	Patel Mohammed Adnan Mohammed Gous	
		20211PET0027	Syed Usman	
	6	20211PET0028	Zoya Falak	Bernoulli's Theorem
		20201PET0027	Yarramsetti Chaitanya Sri	
		20211PET0020	Yashwanth Gowda M	
		20211PET0016	Asma Thasnim	
		20211PET0002	Roshan T	

iii. Sample answers by students:

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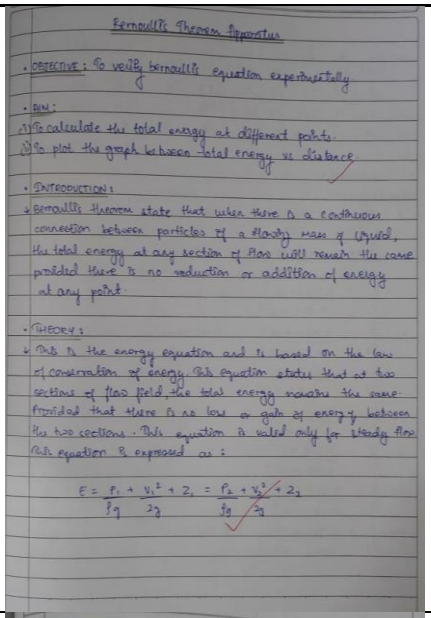


Bernoulli's Theorem Apparatus

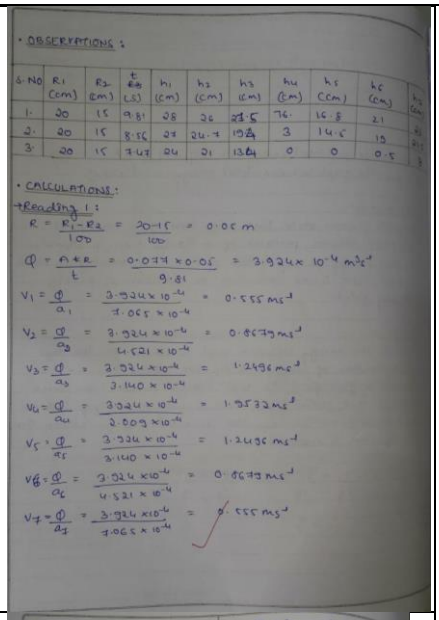
• OBJECTIVE: To verify bernoulli's equation experimentally

• AIM:
1) To calculate the total energy at different points.
2) To plot the graph between total energy vs distance

• INTRODUCTION:
Bernoulli's theorem state that when there is a continuous connection between particles of a flowing mass of liquid, the total energy at any section of flow will remain the same provided there is no reduction or addition of energy at any point

• THEORY:
This is the energy equation and is based on the law of conservation of energy. This equation states that at two sections of flow field, the total energy remains the same provided that there is no loss or gain of energy between the two sections. This equation is valid only for steady flow. Bernoulli's equation is expressed as:

$$E = \frac{P_1}{\rho g} + \frac{V_1^2}{2g} + Z_1 = \frac{P_2}{\rho g} + \frac{V_2^2}{2g} + Z_2$$



• OBSERVATIONS:

S.NO	R1 (cm)	R2 (cm)	t (s)	h1 (cm)	h2 (cm)	h3 (cm)	h4 (cm)	h5 (cm)	h6 (cm)	h7 (cm)
1.	20	15	9.81	28	26	21.5	16	16.8	21	23
2.	20	15	8.56	28	24.7	19.4	3	14.6	15	23
3.	20	15	7.47	24	21	13.4	0	0	0.5	23

• CALCULATIONS:

Reading 1:

$R = \frac{R_1 - R_2}{100} = \frac{20-15}{100} = 0.05\ m$

$Q = \frac{A \times R}{t} = \frac{0.074 \times 0.05}{9.81} = 3.924 \times 10^{-4}\ m^3s^{-1}$

$V_1 = \frac{Q}{a_1} = \frac{3.924 \times 10^{-4}}{7.065 \times 10^{-4}} = 0.555\ ms^{-1}$

$V_2 = \frac{Q}{a_2} = \frac{3.924 \times 10^{-4}}{4.521 \times 10^{-4}} = 0.8679\ ms^{-1}$

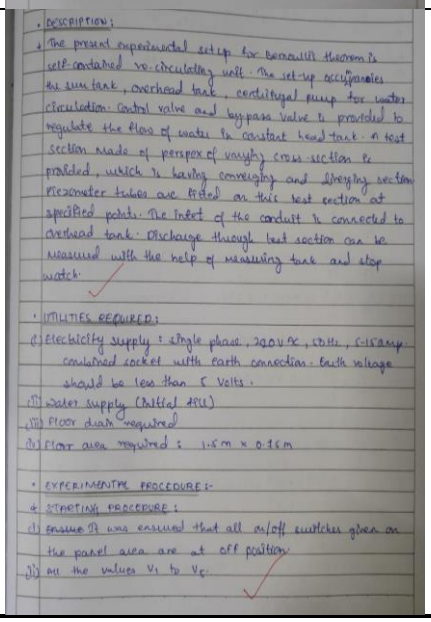
$V_3 = \frac{Q}{a_3} = \frac{3.924 \times 10^{-4}}{3.140 \times 10^{-4}} = 1.2496\ ms^{-1}$

$V_4 = \frac{Q}{a_4} = \frac{3.924 \times 10^{-4}}{2.009 \times 10^{-4}} = 1.9532\ ms^{-1}$

$V_5 = \frac{Q}{a_5} = \frac{3.924 \times 10^{-4}}{3.140 \times 10^{-4}} = 1.2496\ ms^{-1}$

$V_6 = \frac{Q}{a_6} = \frac{3.924 \times 10^{-4}}{4.521 \times 10^{-4}} = 0.8679\ ms^{-1}$

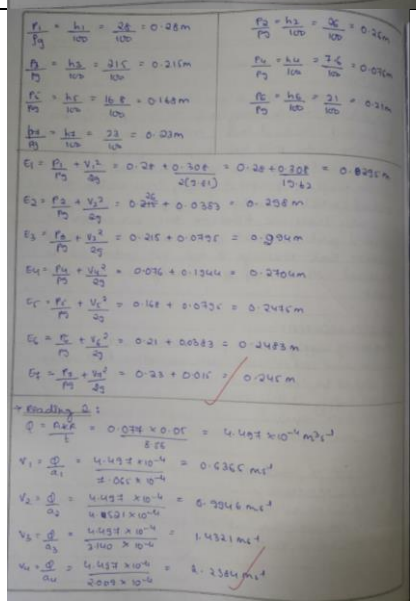
$V_7 = \frac{Q}{a_7} = \frac{3.924 \times 10^{-4}}{7.065 \times 10^{-4}} = 0.555\ ms^{-1}$



• DESCRIPTION:
The present experimental set-up for bernoulli's theorem is self contained re-circulating unit. The set-up accompanies the sump tank, overhead tank, centrifugal pump for water circulation. Control valve and bypass valve is provided to regulate the flow of water in constant head tank. A test section made of perspex of varying cross-section is provided, which is having converging and diverging section. Piezometer tubes are fitted on this test section at specified points. The inlet of the conduit is connected to overhead tank. Discharge through test section can be measured with the help of measuring tank and stop watch.

• UTILITIES REQUIRED:
(i) Electricity supply: single phase, 230 V AC, 50 Hz, 5-15 Amp. combined socket with earth connection. Earth voltage should be less than 5 Volts.
(ii) Water supply (Outlet 4nos)
(iii) Floor drain required
(iv) Floor area required: 1.5 m × 0.6 m

• EXPERIMENTAL PROCEDURE:
• STARTING PROCEDURE:
(i) Ensure it was ensured that all on/off switches given on the panel area are at off position.
(ii) All the values V_1 to V_6



$\frac{P_1}{\rho g} = \frac{h_1}{100} = \frac{28}{100} = 0.28m$ $\quad \frac{P_2}{\rho g} = \frac{h_2}{100} = \frac{26}{100} = 0.26m$

$\frac{P_3}{\rho g} = \frac{h_3}{100} = \frac{21.5}{100} = 0.215m$ $\quad \frac{P_4}{\rho g} = \frac{h_4}{100} = \frac{7.6}{100} = 0.076m$

$\frac{P_5}{\rho g} = \frac{h_5}{100} = \frac{16.8}{100} = 0.168m$ $\quad \frac{P_6}{\rho g} = \frac{h_6}{100} = \frac{21}{100} = 0.21m$

$\frac{P_7}{\rho g} = \frac{h_7}{100} = \frac{23}{100} = 0.23m$

$E_1 = \frac{P_1}{\rho g} + \frac{V_1^2}{2g} = 0.28 + \frac{0.308}{2(9.81)} = 0.28 + 0.308 / 19.62 = 0.8795\ m$

$E_2 = \frac{P_2}{\rho g} + \frac{V_2^2}{2g} = 0.26 + 0.0383 = 0.298\ m$

$E_3 = \frac{P_3}{\rho g} + \frac{V_3^2}{2g} = 0.215 + 0.0795 = 0.294\ m$

$E_4 = \frac{P_4}{\rho g} + \frac{V_4^2}{2g} = 0.076 + 0.1346 = 0.2706\ m$

$E_5 = \frac{P_5}{\rho g} + \frac{V_5^2}{2g} = 0.168 + 0.0795 = 0.2475\ m$

$E_6 = \frac{P_6}{\rho g} + \frac{V_6^2}{2g} = 0.21 + 0.0383 = 0.2483\ m$

$E_7 = \frac{P_7}{\rho g} + \frac{V_7^2}{2g} = 0.23 + 0.015 = 0.245\ m$

Reading 2:

$Q = \frac{A \times R}{t} = \frac{0.074 \times 0.05}{8.56} = 4.497 \times 10^{-4}\ m^3s^{-1}$

$V_1 = \frac{Q}{a_1} = \frac{4.497 \times 10^{-4}}{7.065 \times 10^{-4}} = 0.6365\ ms^{-1}$

$V_2 = \frac{Q}{a_2} = \frac{4.497 \times 10^{-4}}{4.521 \times 10^{-4}} = 0.9946\ ms^{-1}$

$V_3 = \frac{Q}{a_3} = \frac{4.497 \times 10^{-4}}{3.140 \times 10^{-4}} = 1.4321\ ms^{-1}$

$V_4 = \frac{Q}{a_4} = \frac{4.497 \times 10^{-4}}{2.009 \times 10^{-4}} = 2.2384\ ms^{-1}$

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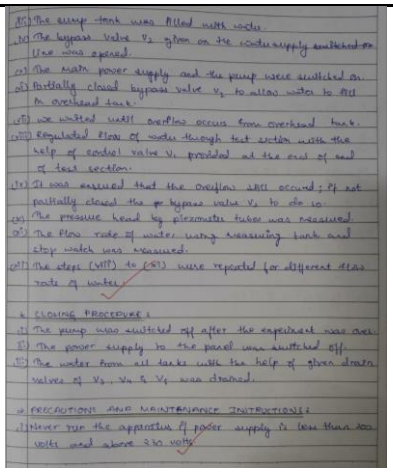

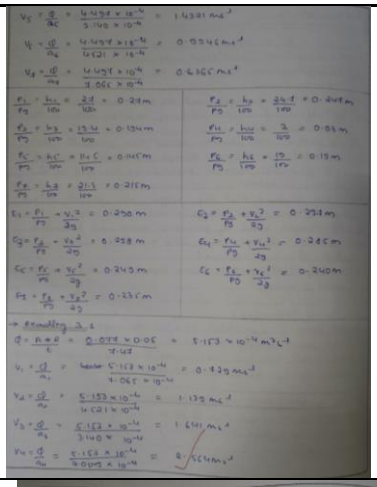

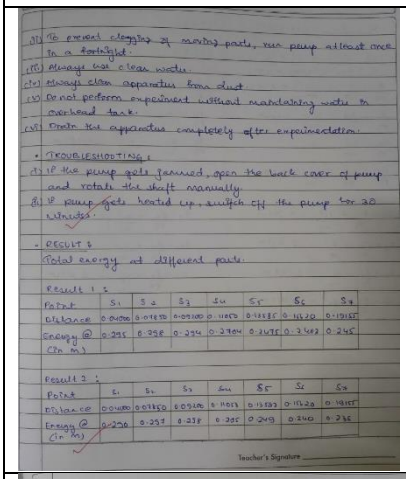

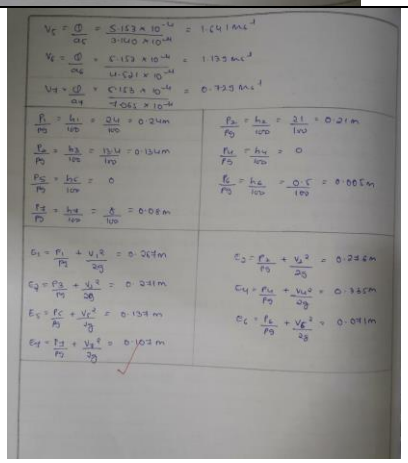

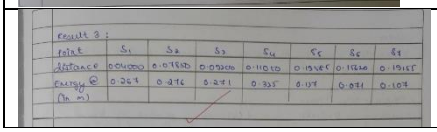

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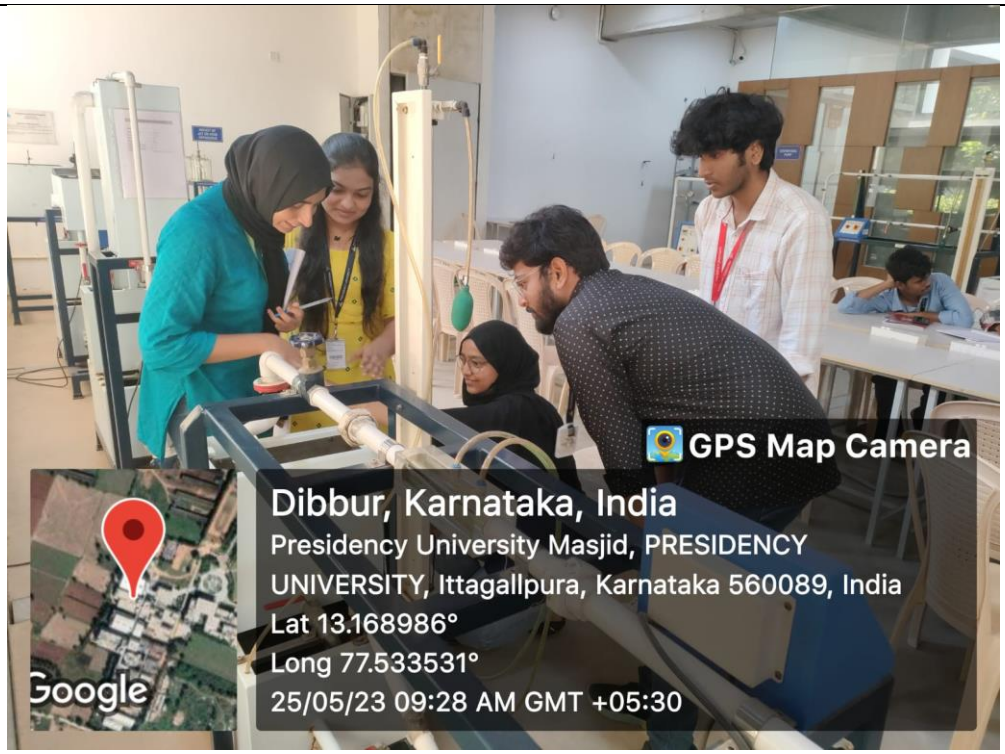
Event photo



Attendance sheet

Sl. No.	ID No.	Student Name	Attendance
1	20211PET0001	Mohamed Saadullah S	P
2	20211PET0002	Roshan T	P
3	20211PET0003	Syed Luqman J	P
4	20211PET0004	Belim Moh Saad Mohammedbhai	P
5	20211PET0005	Mohammad Suhail	P
6	20211PET0008	Vankala Jai Sphoorthi	P
7	20211PET0009	Afeez	P
8	20211PET0010	Hithesh T	P
9	20211PET0011	Ganuga Roshan	P
10	20211PET0012	Mohamed Naif Nihad Ali	P
11	20211PET0013	Deepak Jadhav	P
12	20211PET0014	Darshan D P	P
13	20211PET0015	Mohammad Yasir Byakod	P
14	20211PET0016	Asma Thasnim	P

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	15	20211PET0017	Ibrahim Nawaz M	P
	16	20211PET0018	Sandeep Iyagar	P
	17	20211PET0019	Kiran Ekiran	P
	18	20211PET0020	Yashwanth Gowda M	P
	19	20211PET0021	Mayur P	P
	20	20211PET0022	Yashwanth S	P
	21	20211PET0023	Mohammed Shabaz Khalander D	P
	22	20211PET0024	Bollama Reddy Himavenkata Mankantha	P
	23	20211PET0025	Fazil Shareef H A	P
	24	20211PET0026	Patel Mohammed Adnan Mohammed Gous	P
	25	20211PET0027	Syed Usman	P
	26	20211PET0028	Zoya Falak	P
	27	20201PET0027	Yarramsetti Chaitanya Sri	P
	28	20191PET0050	Shaik Gouspeer Vali	P
	29	20221LPE0001	Shaik Tabish Riyazahmed	P

Signature of Instructor In charge
Dr. Abhinav Kumar
Assistant Professor
Department of Petroleum Engineering

Dr. Suman Paul
Professor and Head
Department of Petroleum Engineering

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Event No.:	BJG14	**Date:**	21-06-2022 (1 Day)
Event Category:	Technical	**Event Type:**	Project
Mode of Event:	Offline	**No. of Participant(s):**	19
Event Category:	**Experiential Learning**		
Event Coordinator:	Mr Bhairab Jyoti Gogoi Assistant Professor, Department of Petroleum Engineering		

Event Title:	Design of Drilling Fluid with organic Waste material as an additive and investigate its properties
Resource Person:	Mr Bhairab Jyoti Gogoi Assistant Professor, Department of Petroleum Engineering
Event Objective:	The main objective of this events is to provide an opportunity to student's to apply their knowledge on Well Design and Construction to solve problems. This event will help the student to develop- SKILL and EMPLOYBILITY
Event Photo(s):	

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Private University Estd. in Karnataka State by Act No. 41 of 2013
40
Department of Petroleum Engineering
Project on "Design of Drilling Fluid with organic Waste material as an additive and investigate its properties"
PET 2001 DRILLING FLUID TECHNOLOGY
This PROJECT aims to improving the employability skills of the students.
Resource Person:
Mr. Bhairab Jyoti Gogoi
Assistant Professor
Department of Petroleum Engineering
Who are eligible for Registration?
All 6th Semester Petroleum Engineering student
Mode of Conduction: OFFLINE
Date: 18-04-2022
(e-certificate will be issued after successful completion of the Course)
Faculty Coordinator:
Mr. Bhairab Jyoti Gogoi
(e-mail: bhairabjyoti@presidencyuniversity.in)
Our Sponsors:
SPE
AAPG

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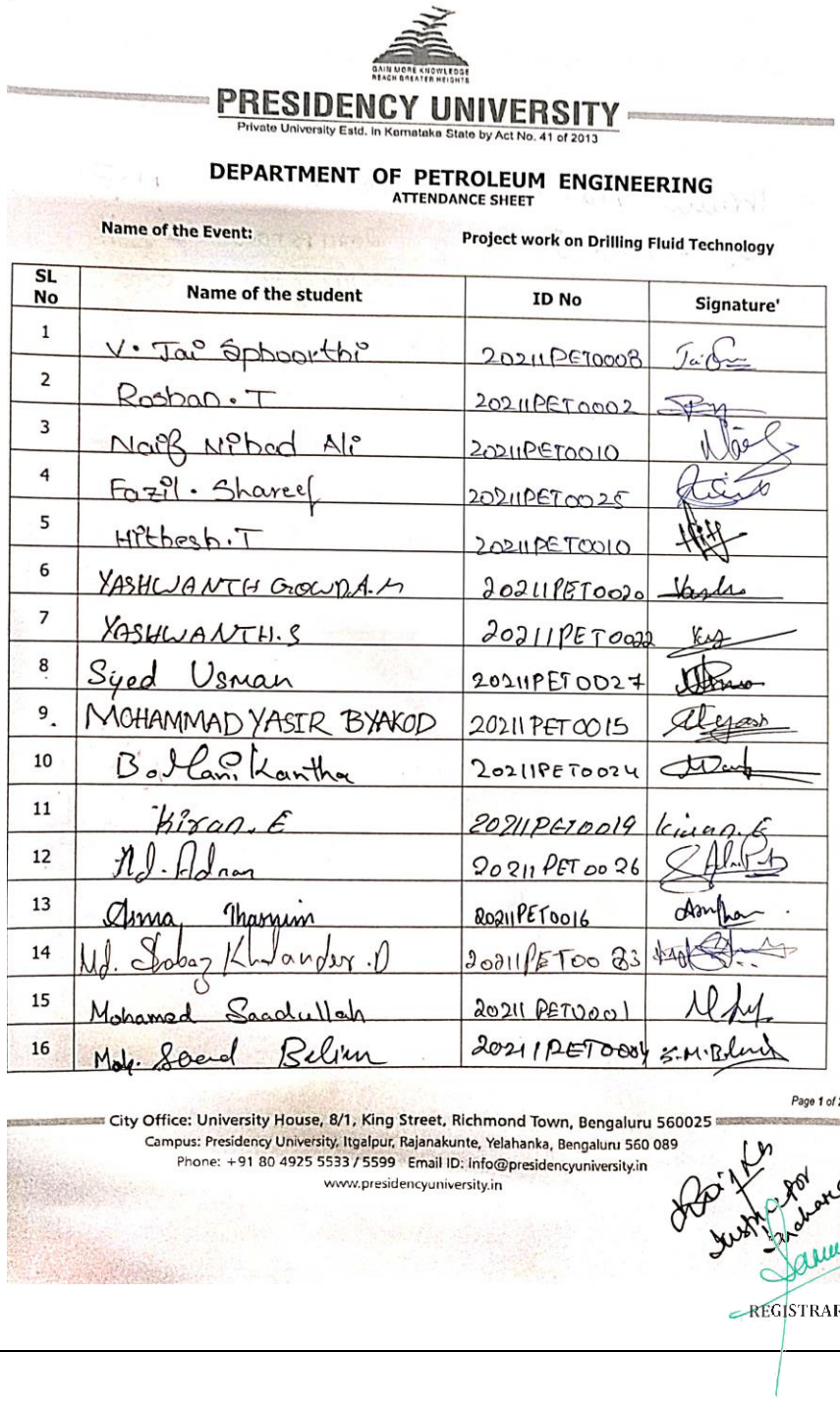
List of Participants



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DEPARTMENT OF PETROLEUM ENGINEERING
ATTENDANCE SHEET

Name of the Event: Project work on Drilling Fluid Technology

SL No	Name of the student	ID No	Signature'
1	V. Jai Sphoorthi	20211PET0008	
2	Rosban. T	20211PET0002	
3	Naif Nihad Ali	20211PET0010	
4	Fazil. Shareef	20211PET0025	
5	Hitthesh. T	20211PET0010	
6	YASHWANTH GOWDA. M	20211PET0020	
7	YASHWANTH. S	20211PET0022	
8	Syed Usman	20211PET0027	
9.	MOHAMMAD YASIR BYAKOD	20211PET0015	
10	B. Hari Kantha	20211PET0024	
11	Kiran. E	20211PET0019	
12	Md. Adnan	20211PET0026	
13	Asma Tharnum	20211PET0016	
14	Md. Sabaz Khwander. D	20211PET0083	
15	Mohamed Saadullah	20211PET0001	
16	Mohd. Saad Belim	20211PET0084	

Page 1 of 2

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Campus: Presidency University, Itgalpur, Rajanakunte, Yelahanka, Bengaluru 560 089
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www.presidencyuniversity.in

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17	Ibrahim Nawaz	20211PET0017	No2
18	Syed Luqman. J	20211PET0003	
19	Afeez	20211PET0009	
20			
21			
22			
23			
24			
25			
26			

Mr. Bhairab Jyoti Gogoi
Instructor In charge

City Office: University House, 8/1, King Street, Richmond Town, Bengaluru 560025
Campus: Presidency University, Itgalpur, Rajanakunte, Yelahanka, Bengaluru 560 089
Phone: +91 80 4925 5533 / 5599 Email ID: info@presidencyuniversity.in
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Student's report

Department of Petroleum Engineering
Presidency University, Bengaluru
Itgalpur, Rajanakunte, Yelahanka, Bengaluru – 560064

Project Report on PET 2001 Drilling Fluid Technology
Section: 2PET-1
Submitted to: Mr. Bhairab Jyoti Gogoi (Instructor In-Charge)
Date of Submission: 21-6-22

Project Title	Banana peel as a Drilling fluid Additive : An experimental investigation of a water based Drilling fluid.
Sample material	Banana peel.
Objective of the project	• Comparison between Banana peel and Starch as drilling fluid additives • Measuring Plastic Viscosity, Apparent viscosity, Yield point, lubricity, ph, filter press of the drilling fluid with additives as banana peel and starch.
Chemicals Used	S-1 Bentonite, Fly Ash, $CaCO_3$, NaOH, banana peel S-2 Bentonite, Fly Ash, $CaCO_3$, NaOH, Starch
Equipments used	Remi Stirrer, Hand Crank viscometer, pH meter, EP lubricity Tester, LPLT Filter press.
Sample composition	S-1: 800 ml Water + 64 gm Bentonite + 24 gm Fly Ash + 8 gm $CaCO_3$ + 16 gm Banana peel S-2: 800 ml water + 64 gm Bentonite + 24 gm Fly Ash + 8 gm $CaCO_3$ + 16 gm Starch.

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Observations

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Hand Crank Viscometer readings:

Sample No.	RPM ϕ600	RPM ϕ300	PV	AV	YP	Gel Strength 10 sec	Gel Strength 10 min
Sample 1	18	11	7	9	43	20	25
Sample 2	98	50	48	44	2.	126	127

Sample : 1

Plastic viscosity (PV) (in centipoise cP)

$PV = \mu_p$ = 600 RPM Reading − 300 RPM Reading

= 18 − 11

μ_p = 7 cP

Apparent Viscosity (AV) (in centipoise cP)

$AV = \mu_a = \frac{600 \text{ RPM Reading}}{2}$

$= \frac{18}{2}$

AV = 9 cP

Yeild Point (Y.P) in $lb/100\,ft^2$:

YP = 300 RPM Reading − PV

= 50 − 7

Y.P = 43 $lb/100\,ft^2$

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Sample - 2 :

PV = μ_p = 600 RPM Reading - 300 RPM Reading
= 98 - 50
μ_p = 48 cP

AV = μ_a = $\frac{600 \text{ RPM Reading}}{2}$
= $\frac{98}{2}$
μ_a = 44 cP

YP = 300 RPM Reading - PV
= 50 - 48
Y.P = 2 $\frac{lb}{100 ft^2}$

PH readings:

Sample No.	pH
sample 1	12.31
sample 2	12.39

LPLT Filter Press Reading :

Sample No	Amount of Filtrate (cm³) 7.5 min	15 min	30 mins	Mud cake thickness (1/32")
1	82	132.8	188	38/32 =
2	~~28~~	~~44.0~~	660	~~28~~/32

EP Lubricity readings:

Sample No.	Torque reading	CF	LC
1	46	0.739	0.339
2	28	1.214	0.339

correction ~~coefficient~~ Factor (CF):

Sample 1 : $\frac{34}{\text{Avg. Torque reading}} = \frac{34}{46}$
= 0.739

Sample 2 : $\frac{34}{28}$ = 1.214

Lubricity Coefficient (LC):

Sample 1 : $\frac{46 \times CF}{100}$ = 0.339

~~Sample 2 : $\frac{28 \times CF}{100}$ = 0.339.~~

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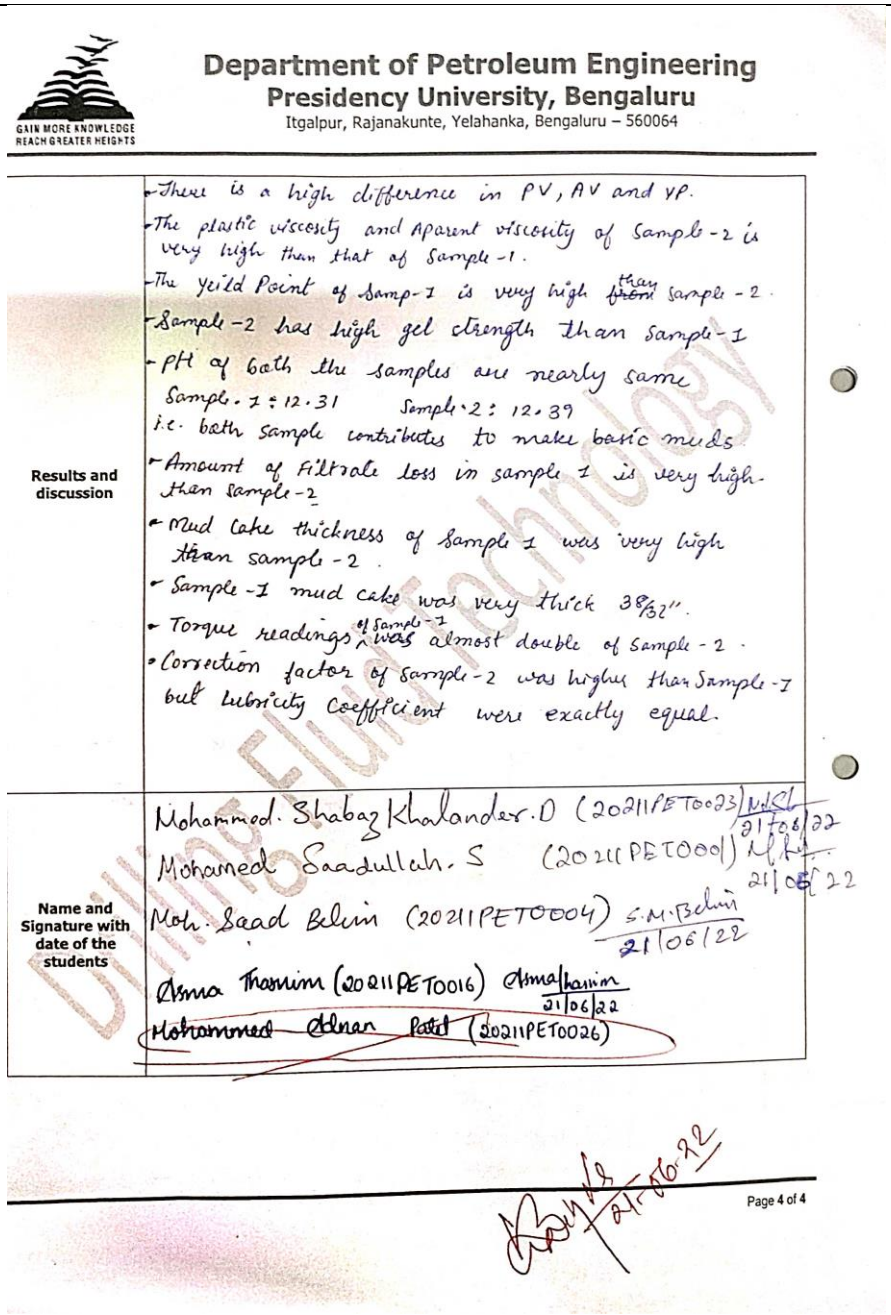

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Results and discussion

- There is a high difference in PV, AV and YP.
- The plastic viscosity and Apparent viscosity of Sample-2 is very high than that of Sample-1.
- The yeild Point of Samp-1 is very high ~~from~~ than Sample-2.
- Sample-2 has high gel strength than Sample-1
- pH of both the samples are nearly same
  Sample-1 : 12.31 Sample-2 : 12.39
  i.e. both sample contributes to make basic muds
- Amount of Filtrate loss in sample 1 is very high than Sample-2
- Mud Cake thickness of Sample 1 was very high than sample-2.
- Sample-1 mud cake was very thick 38/32".
- Torque readings of Sample-1 was almost double of Sample-2.
- Correction factor of sample-2 was higher than Sample-1 but Lubricity Coefficient were exactly equal.

Name and Signature with date of the students

Mohammed. Shabaz Khalander. D (20211PETO023) 21/06/22
Mohamed Saadullah. S (20211PETO001) 21/06/22
Moh. Saad Belim (20211PETO004) S.M.Belim 21/06/22
Asma Thasnim (20211PETO016) Asma Thasnim 21/06/22
~~Mohammed Adnan Patel (20211PETO026)~~

21-06-22

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Presidency University, Bengaluru
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Project Report on PET 2001 Drilling Fluid Technology
Section: 2PET-1
Submitted to: Mr. Bhairab Jyoti Gogoi (Instructor In-Charge)
Date of Submission: 21-6-22

Project Title	Preparation of a Drilling Fluid using Coconut Husk as a polymer.
Sample material	Coconut Husk.
Objective of the project	(1.) To get the comparitive results of drilling fluids made by using starch and coconut husk as ad polymers. (2.) To reduce the waste (managment).
Chemicals Used	Starch, Bentonite, NaOH, $CaCO_3$, Fly Ash
Equipments used	Hand Crank Viscometer, EP Lubricity Tester, API LPLT Filter Press.
Sample composition	(1.) 800ml water + 8g Starch + 40g Bentonite + 8g NaOH + 16g $CaCO_3$ + 16g Fly Ash (2) 800ml water + 8g Coconut Husk + 40g Bentonite + 8g NaOH + 16g $CaCO_3$ + 16g Fly Ash.

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Observations

① Hand Crank Viscometer :

Equipment	RPM		Plastic Viscosity	Apparent Viscosity	Yield Point	Gel Strength (lb/100 sq.ft.)	
	ϕ600	ϕ300	μp(PV) cP	μa (AV) cP	Yp (YP) lb/100 sq. ft.	10sec	10min
Hand Crank Viscometer	30	18	12	15	6	40	45
	14	8	6	7	2	17	19

μp = ϕ600 − ϕ300,
at starch a polymer → 30 − 18 = 12 cP
at Coconut Husk polymer → 14 − 8 = 6cP

$\mu_a = \frac{\phi 600}{2}$,
at starch polymer → 30/2 = 15cP
at Coconut Husk polymer → 14/2 = 7cP
Y.P = ϕ300 − μp,
at starch polymer → 18 − 12 = 6cP
at coconut husk polymer → 8 − 6 = 2cP

② EP Lubricity Tester:

Sl.No	Torque reading for Drilling Fluid.
1.	50 (Sample 1 – Starch)
2.	50 (Sample 2 – Coconut Husk).

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Correction Factor (CF) = 34/avg. reading.
= 34/50 = 0.75

Lubricity Coefficient (LC) = $\frac{\text{Meter reading} \times (CF)}{100}$

= $\frac{50 \times 0.75}{100} = 0.375$

Lubricity coefficient of the given sample is, 0.375.

(3) API LPLT Filter Press :

Sl. No	Amount of Filtrate (15 min)	Amount of Filtrate (30 min)	Mud Cake Thickness (1/32")
1.	5	7.6	2/32 (Starch)
2.	96	141	19/32 (Coconut Husk)

(4) pH of both the samples,

pH	Sample 1	Sample 2.
	12.45	12.52.

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GAIN MORE KNOWLEDGE
REACH GREATER HEIGHTS

Department of Petroleum Engineering
Presidency University, Bengaluru
Itgalpur, Rajanakunte, Yelahanka, Bengaluru – 560064

Results and discussion	① For the fluid sample with starch as polymer, PV, AV, YP and Gel strength is respectively 12cP, 15cP, 6cP and 45 lb/100 sqft. For the fluid sample with coconut husk as polymer, PV, AV, YP and Gel strength is respectively 6cP, 7cP, 2cP and 19 lb/100 sqft. – Less value of PV, AV, YP and Gel strength on using coconut husk as additive. ② No change in the L.C value. ③ Mud cake thickness is more for the sample with coconut husk as additive. ④.
Name and Signature with date of the students	V. Jaisphoorthi [21st June 22] Roshan. T Naff Nihad Ali Hitheshi. T Fazil. S

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Event Category:	Experiential learning	**Date:**	01-12-2022 (1 Day)
Event Category:	Technical	**Event Type:**	Laboratory
Mode of Event:	Online/Offline	**No. of Participant(s):**	30
Year	2nd Year	**Semester:**	III
Event Organizer	Department of Petroleum Engineering, Presidency University		
Name of the faculty	Dr. Sidharth Gautam Assistant Professor, Department of Petroleum Engineering		

Article name	**Estimation of the consistency index of provided sample lubricant.**

Article description

The characteristics of lubricants may be evaluated based on some of their properties, such as: density, viscosity, vapor pressure, freezing point, acid number, etc. In this experiential learning session, the participants were trained to operate drop cone penetrometer apparatus through which consistency of a lubricant/grease sample can be determined.

Consistency is resistance to deformation by an applied force. The measure of consistency is penetration. Penetration is defined as the depth of penetration (expressed in 10th of millimeters) of a metallic cone with standardized shape and dimension into a solid grease sample for a period of 5 seconds. Penetration tests (ASTM - D217) are performed on petroleum products to determine consistency and shear stability (lubricating greases) for design, quality control and identification purposes. A standard cone or needle is released from a penetrometer and allowed to drop freely into the sample for 5 seconds (or a different specified interval) at constant temperature. A penetration of 100 would represent a solid grease while one of 450 represents semisolid. The NLGI has established consistency number or grade number, ranging from 000 to 6, corresponding to specified ranges of penetration number.

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Sidharth Gautam

Faculty Incharge
Dr. Sidharth Gautam
Assistant Professor
Department of Petroleum Engineering

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