MARATHA VIDYA PRASARAK SAMAJ'S
KARMAVEER ADV. BABURAO GANPATRAO THAKARE
COLLEGE OF ENGINEERING
Permanently Affiliated to Savitribai Phule Pune University Vide Letter No: CA/1542
& Approved by AICTE New Delhi Vide Letter No: 740-89-32 (E) ET/98
AISHE Code - C-41622
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Department of Civil Engineering

Innovative Teaching Method: Concept of Hydraulic Gradient using model making

Name of Faculty: Dr. S.J. Kadbhane **Class: SE**

Academic Year: 2021-22 **Semesters: II**

Name of Subject: Geotechnical Engineering

Objectives of Methodology:

1. To familiar student with hydraulic gradient concept
2. To develop skill like model making, team work, lifelong learning

Details of Activity/Method:

In this teaching method, the concept of hydraulic gradient is first explain in the class and ask students to make the model of hydraulic gradient using waste plastic bottles and tubes. Students made the group of 4 to 5. Model was made within the two week time. Results from models are observed and calculation and report are submitted by students. In the end, some questions are asked to students to check the outcome. Questions are as follows.

1	Darcys law is
2	Hydraulic gradient is calculated by
3	From the plastic bottle model we get
4	According to model permeability is depends on
5	head loss is
6	unit of hydraulic gradient is
7	unit of discharge q is
8	unit of discharge elevation head is

9 unit of coefficient of permeability is

10 CO2: Explain permeability and seepage analysis of soil by construction of flow net. Do you feel CO2 is achieved? please rate....

11 PO1: Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems. Do you feel PO1 is achieved? please rate....

12 PO9: Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings. Do you feel PO9 is achieved? please rate....

13 PO12: Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change. Do you feel PO12 is achieved? please rate....

Assessment is summaries in table as below

Assessment Tools & Rubrics:

Roll No	Name of Students	Knowledge of toolbar (4)	Equation formulation (4)	Graphical Representation (2)	Final Marks (10)
01	OM SANJAY AGRAWAL	3	3	2	8
02	PARTH DEEPAK AHER	4	3	2	9
03	PRADNYA BAPU AHER	3	4	2	9
04	SWATEJ RAGHUNATH AHER	4	3	1	8
05	VAIBHAV KARBHARI AHER	2	2	1	5
06	ZEESHAN ALI MOHAMMAD	4	4	2	10
07	HARI VIJAY AWANKAR	3	4	2	9
08	DARSHAN SUNIL BACHHAV	4	3	1	8
09	MANOJ NAVNATH BANGAR	3	4	2	9
10	SURAJ NIVRUTTI BHADANE	4	3	1	8
11	YASH DEEPAK BHADANE	2	2	1	5
12	YOGITA DILIP BHAMARE	3	4	2	9
13	VINAY SUNIL BORAVE	4	3	1	8
14	PALLAVI B. CHAUDHARI	3	3	1	7
15	DIVYA BARKU CHAVAN	4	3	2	9
16	MOHD ASIF CH B.AHMAD				
17	ARJUN PRASHANT DEORE	2	2	1	5
18	RITESH RAKESH DEORE	4	3	2	9

19	VAIBHAV K. DESHMUKH	3	4	2	9
20	SURAJ SANTOSH WANKHEDE	3	3	2	8
21	YASH RAJENDRA DESHMUKH	4	3	2	9
22	TEJAS DEVIDAS GAHIWAL	3	4	2	9
23	TEJASWINI HEMANT GHARATE	4	3	1	8
24	PRANAV D.GHUGE	3	3	1	7
25	JAYKUMAR J. KOTHIYA	4	4	2	10
26	KRISHNA HEMANT HIRANI				
27	TEJAS UTTAM JADHAV	3	4	2	9
28	YOGINI DHANRAJ JADHAV	4	3	1	8
29	TANISHKA D. JAGTAP	3	3	1	7
30	ATHARVA MANIK KAKAD	4	4	2	10
31	SIDDESH SANJAY KALE	4	3	2	9
32	ASHUTOSH ANIL KALOGE	3	4	2	9
33	APURVA ANANT KAPADNIS	4	3	1	8
34	AJAY C.KHAMBAIT	2	2	1	5
37	SAKSHAM M. ASHWANI	4	4	2	10
38	KAJAL K.MAURYA	3	3	2	8
39	AMAN GANESH MEHETRE	4	3	2	9
40	SAHIL VILAS MHAISDHUNE	3	4	2	9
41	GAURAV PRAKASH MHASKE	4	3	1	8
42	LALIT LATISH MUNDAWARE	3	3	2	8
43	MAYURESH SOMNATH PATIL	4	3	2	9
44	IMRAN SHAKIL PATHAN				
45	HARSHALI JITENDRA PATIL	4	3	1	8
46	PRATIK YOGESH PATIL	3	3	2	8
47	YASHWARDHAN P.PATIL	4	3	2	9
48	OM ANIL RAJOLE	3	4	2	9
49	PRANJAL S.RANDHIR	4	3	1	8
50	JANAVHI PRAKASH SALUNKE	2	2	1	5
51	HEMANT D. SANGALE	4	4	2	10
52	SAKSHI G. SANGLE	4	3	1	8
53	ROHIT SOMNATH SHINDE	3	3	2	8
54	ROSHANI SURESH SHIRSATH	4	3	2	9
55	ARJUN MAHY PAL SINGH	3	4	2	9

56	ABHISHEK S. SONAWANE	4	3	1	8
57	BHUVANESH D. SONAWANE	3	3	1	7
58	ANIKET R. SURYAWANSHI	4	4	2	10
59	RAHUL KAILAS TAMBE	4	3	2	9
60	AKASH BALASAHEB TARLE				
61	YOGENDRA P. VASAIKAR	4	3	1	8
62	SIDDHANT D. VELIS	3	3	2	8
63	RUSHIKESH MADAN WAGH	2	2	1	5
64	YUVRAJ HIREN PAGAR	3	4	2	9
65	AVINASH S. BHADANGE	3	3	2	8
66	MHASKE K. BHALCHANDRA	4	3	2	9
67	JADHAV PRATHAM VIJAY	3	4	2	9
68	KARVE PRANAV SANJAY	4	3	1	8
69	SONAWANE P. RAMAKANT	3	3	2	8
70	PAGAR KALYANI GORAKH	4	3	2	9
71	PATIL SIDDHESH SUDHIR	3	4	2	9
72	AGRAWAL VINIT SURYAKANT	2	2	1	5
73	MUSALE SRUSHTI GIRISH	3	3	1	7
74	KHADANGALE V. MANGESH	4	4	2	10
75	BAGUL SOMNATH POPAT	4	3	2	9
76	AHIRRAO LEENA MAHENDRA	3	3	2	8
77	BHUSE ISHAA PRASHANT	4	3	2	9
78	NAGAPURE GAYATRI D.	3	4	2	9
79	PAWAR NIKITA ANIL	4	3	1	8
80	UGALE VIKAS RAJENDRA	3	3	1	7
81	TAJANPURE V. BHARAT	4	4	2	10
82	KADLAG SANKET SANDIP	4	4	2	10

Course Outcomes:

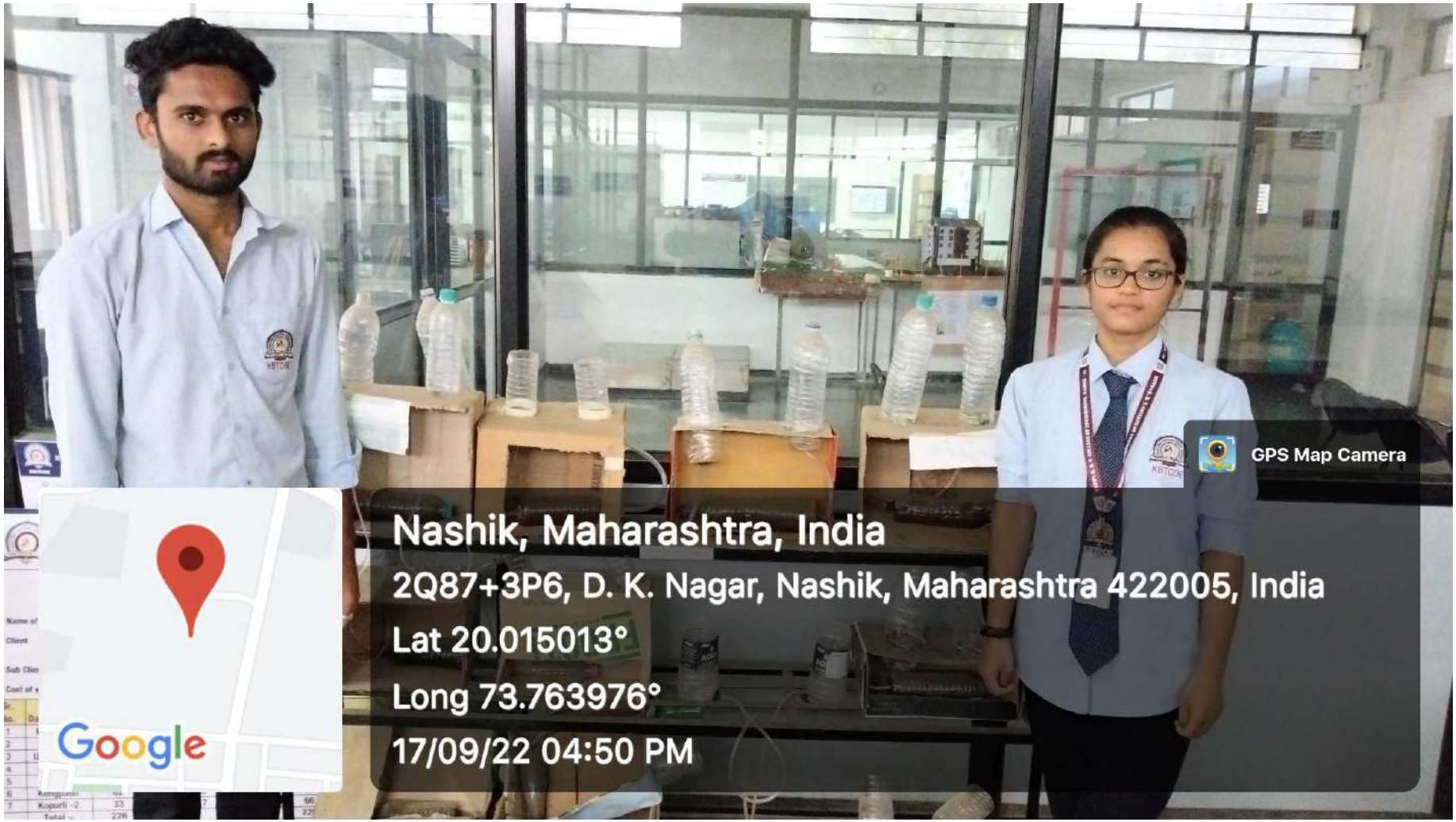
	After the completion of course students will be able to:	BTL
CO2	Explain permeability and seepage analysis of soil by construction of flow net.	2

POs (Related to Methodology)

PO1	PO1: Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems. Do you feel PO1 is achieved? please rate....

PO9	PO9: Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings. Do you feel PO9 is achieved? please rate....
PO10	PO12: Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change. Do you feel PO12 is achieved? please rate....

Evidences: Activity Photographs/Videos/Sample PPT's : -


GPS Map Camera
Nashik, Maharashtra, India
2Q87+3P6, D. K. Nagar, Nashik, Maharashtra 422005, India
Lat 20.015013°
Long 73.763976°
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Google

Recorded Video Link : -

Feedback/Impact Analysis (Based on Students Feedback):

Course Outcome

	Course Outcome	CO2
A	**Students Achieving CO**	70
B	**Total Rating**	78
C	**Average Rating (B/A)**	89.74

Program Outcome and Program Specific Outcome

	Program Outcome	PO1	PO9	PO10
A	**No. of Groups/Students Achieving PO**	70	70	70
B	**Total Rating**	78	78	78
C	**Average Rating (B/A)**	89.74	89.74	89.74

Recorded Video Link :

Link for Review and Critics:

https://docs.google.com/forms/d/e/1FAIpQLScAqvW1QYg95cBpUaUj0wIvjAodm2blHNdXeoPI_QZUSme5Zg/viewform?usp=sf_link

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