Course Syllabus (Academic Year 2022)

School of Interdisciplinary Studies, Kanchanaburi Campus, Mahidol University

1. **Course No. and Title** : KAGS 479 Environmental and Engineering Geophysics

   Credit (study hours) : 3 (3-0-6)

2. **Program Name** : Bachelor of Science in Geoscience

3. **Course Module** : Elective

   Pre/co-requisite : KAGS 351, KAGS 301, KAGS 308, KAGS 353

4. **Class Semester** : ✔ 1st Semester   2nd Semester   Academic Year 2022

5. **Class Schedule & Venue** : Tuesday 9:00 – 12:00 ✔ Online (Webex /zoom) and Google classroom

   ✔ Room for online and sit-in

   ☐ Laboratory Room ....

6. **Class Coordinator** : Songkhun Boonchaisuk

   Contact No. : 080-5997690 Email : songkhun.boo@mahidol.edu

7. **Course Description**

   An introduction to field methods of geophysical exploration, especially as applied to environmental and engineering problems; ethic for working, critical thinking, life-long learning.

8. **Course Objectives / Course Learning Outcomes (CLOs)**

No.	Objectives / CLOs	Expected Skills / Knowledge			PLOs
		Specific	Generic	Knowledge	
8.1	Understand the principles of geophysics	x	x	x	2
8.2	Understand the geophysics survey and data processing	x	x		3,4,5
8.3	Apply Geophysical technique to environmental and engineering problem	x	x		2,3,4,5

9. **Class Instructor List**

   9.1. Name : Songkhun Boonchaisuk Contact No. : 080-5997690 Email : songkhun.boo@mahidol.edu

10. Course Outline

Week	Date	Contents	CLOs	Teaching & Learning	Instructor's Names
1	09/08/22	Introduction observations	1	Introduction, course objective and assessment, PPT presentation/online	Songkhun
2	16/08/22	Practical DC resistivity Sounding (VES)	1,2	PPT presentation/online	Songkhun
3	23/08/22	Practical DC resistivity survey (2D DCR)	1,2,3	PPT presentation/online	Songkhun
4	30/08/22	IPI2WIN (1D and semi-2D VES processing) and RES1DINV	1,2	PPT presentation/online	Songkhun
5	06/09/22	Real data VES processing	3	PPT presentation/online	Songkhun
6	13/09/22	VES Data presentation	1,2,3	PPT presentation/online	Songkhun
7	20/09/22	Electre II (2D DCR data acquisition)	1,2,3	PPT presentation/online	Songkhun
8	27/09/22	Res2DMOD (how to)	1,2,3	PPT presentation/online report/presentation	Songkhun
9	04/10/22	Mid-term Examination			
10	11/10/22	Res2DMOD input file	1, 2	PPT presentation/online	Songkhun
11	18/10/22	RES2DMOD for case studies	3	PPT presentation/online	Songkhun
12	25/10/22	Generate Synthetic data for RES2DINV	1,2,3	PPT presentation/online	Songkhun
13	01/11/22	RES2DINV	1, 3	PPT presentation/online	Songkhun
14	08/11/22	RES2DINV : input and functions	1,3	PPT presentation/online	Songkhun
15	15/11/22	RES2DINV : synthetic Tests	1,2,3	PPT presentation/online	Songkhun
16	22/11/22	Case studies	1,2,3	PPT presentation/online report/presentation	Songkhun
17	06/12/22	Final Examination			

11. Course Assessment

No.	Methods / Activities	Regulations	CLOs	Week	Weight Distribution (%)
11.1	Mid-term exam	Paper base; online	all	9	30
11.2	Final exam	Paper base; online	all	17	30
11.3	Quiz	Homework; kahoot; google from	all	2,4,6,8,10,12,14	10
11.4	Reports / Assignments	Report and PPT presentation	all	16	20
11.5	Class participation	Must be greater than 80%			10
				Total	100

12. Grading System

✓ Criterion-referenced evaluation

Grade	Score	Grade	Score	Grade	Score	Grade	Score
A	≥ 80 %	B	70 – 74.99%	C	60 – 64.99%	D	50 – 54.99%
B+	75 – 79.99%	C+	65 – 69.99%	D+	55 – 59.99%	F	< 50 %

✓ Norm-referenced evaluation

*If use both criterion and norm-referenced evaluation, please tick two boxes.

13. References

13.1 Telford, W., Geldart, L., & Sheriff, R., (1990). Applied Geophysics. Cambridge: Cambridge University Press. doi:10.1017/CBO9781139167932

13.2 McCann, D. M., 1997, Modern Geophysics in Engineering Geology Geological Society Engineering Geology Special Publication ; No. 12.

13.3 Sharma, P. V., 2002, Environmental and Engineering Geophysics, Cambridge University Press, 477 p.